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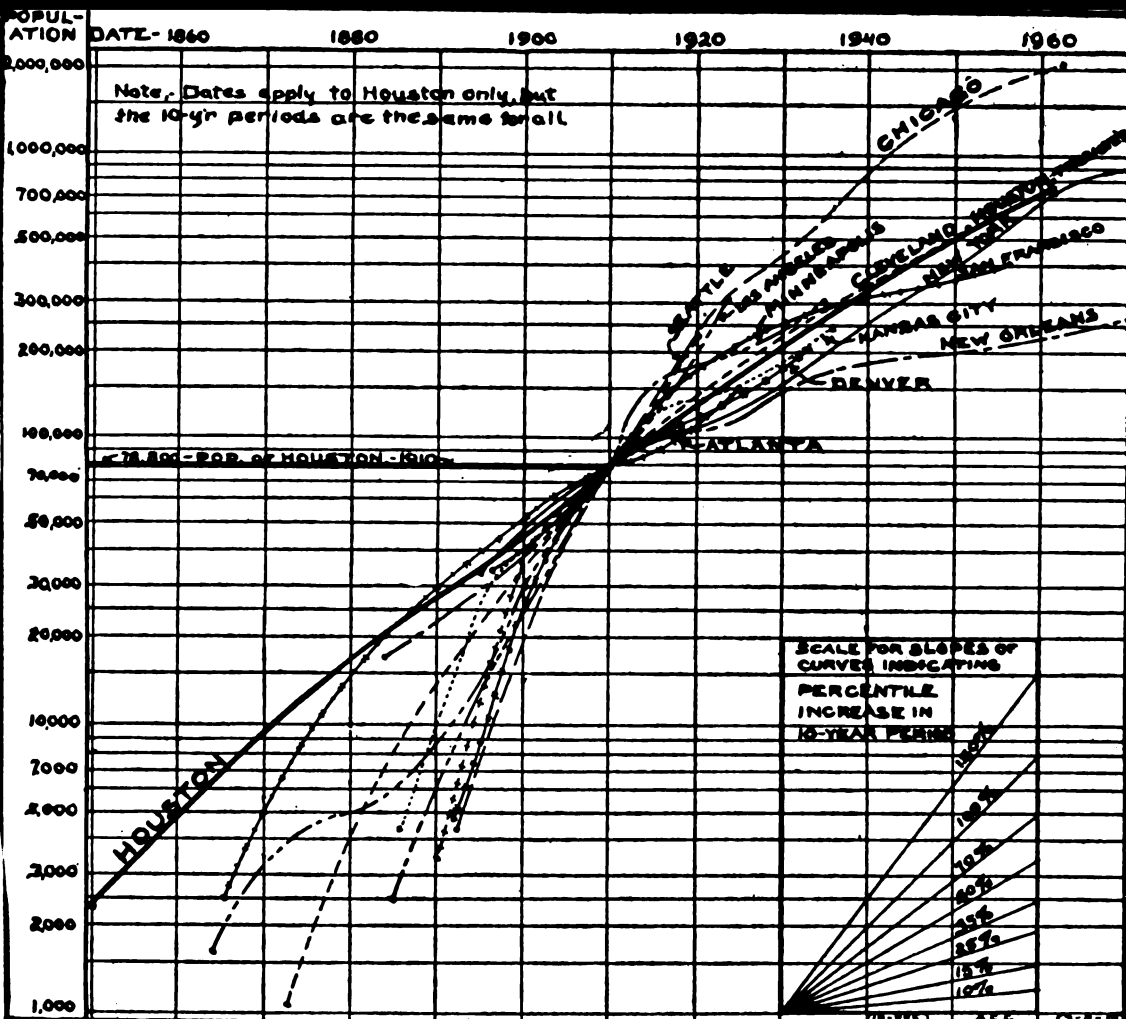
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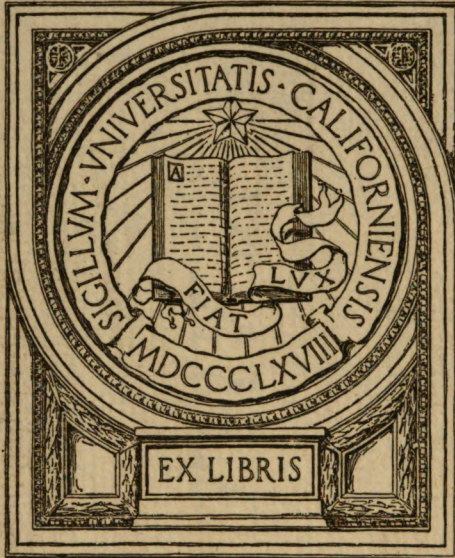
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Houston

Arthur Coleman Comey, Houston (Tex.). Park Commission, Houston, Tex. Park Commission

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HOUSTON TENTATIVE PLANS FOR ITS DEVELOPMENT

REPORT TO THE
HOUSTON PARK COMMISSION
BY
ARTHUR COLEMAN COMEY
1913

HOUSTON

TENTATIVE PLANS FOR ITS DEVELOPMENT

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1913



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TO WHOM
APPROPRIATE

ARTHUR C. COMEY
LANDSCAPE ARCHITECT
CONSULTANT ON CITY PLANNING
HARVARD SQUARE, CAMBRIDGE, MASS.

MARCH 1st, 1913.

TO THE HOUSTON PARK COMMISSION,
HOUSTON, TEXAS:

Gentlemen,—

I beg to submit herewith preliminary report on the City Plan of Houston. The recommendations in this report, while in no way to be considered final, are the result of several months' careful study undertaken in the spring of 1912, and cover the main problems in civic development which have seemed to demand attention at this time.

Special emphasis has been laid on the ways and means of carrying out the various phases of the physical plans, so that it may be possible to proceed without delay, and thus avoid the fatal hiatus which has so often come in the improvement of many American cities subsequent to the publication of the preliminary report. I sincerely trust that this deplorable tendency will not hold back the civic progress of Houston.

Respectfully submitted,

(Signed) ARTHUR COLEMAN COMEY.

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HOUSTON

TENTATIVE PLANS FOR ITS DEVELOPMENT

I. INTRODUCTION

The twentieth century is an age of cities. In thirty years from 1880 to 1910 the proportion of urban population in the United States has risen from 29.5 to 46.3 per cent. In the last decade the population of the urban territory has increased 34.8 per cent. and the rural population but 11.2 per cent., and this tendency seems likely to continue.

People live in the city primarily because it offers better facilities for trade and industry,—that is, better means of earning a living; and, secondarily, because it provides better opportunities for enjoying the amenities of life. Trade and industry are dependent mainly upon a market and facilities for communication with that market. Therefore, the cities which have grown most rapidly are those with the largest tributary areas and the most efficient means of transportation, where possible utilizing both water and rail. These fundamental causes for growth have frequently been supplemented by others, such as favorable topography, the energy of individual men or corporations, and the adoption of progressive measures in civic development.

In Houston we find all these and many other agencies combining to create a great city. The territory for the marketing of its commodities is vast in area and increasing in population at a rapid rate. Its radiating railroad lines give ready access to all this territory; and upon completion of its ship channel it will have a combination of rail and water facilities second to none in the State of Texas. Strategically considered, Houston's location assures it of becoming the metropolis of the great South-west. Its steady, rapid increase in population in the past indicates a keen appreciation of this fact.

With the growth of cities there has come a great increase in the mutual interdependence of their inhabitants. Whether we believe in socialistic doctrines or not, we all recognize the value of commercial activity in a great variety of directions, such as preserving law

and order, safety from fire, provision for pavements, sewerage, and the other usual municipal departments. But it is only recently that any thought has been given toward correlating these activities and planning on broad lines in advance to secure the greatest public good, as would be done by a private corporation.

This, then, is city planning,—to study and determine in advance the physical needs of the growing city, and lay out a scheme of development in such a way that each improvement will dovetail into the next, thus gradually forming an organically related whole. The complex activities of a city demand an equally complex plan for development, so that each of its functions may be fulfilled without undue interference with any other. The physical aspects of the city are embraced in three main groups,—(I.) circulation, including all means of transportation and communication; (II.) other public property; and (III.) private property. A further classification may be made as follows:—

I. Circulation.

1. Waterways: *a.* Commercial.
b. Drainage.
2. Railroads: *a.* Passenger Terminals.
b. Freight Terminals.
c. Rights of Way.
3. Streets: *a.* Thoroughfares.
b. Minor Streets.
c. Parkways and Boulevards.
4. Electric Lines: *a.* City Lines.
b. Interurban Terminals.
c. Interurban Rights of Way.
5. Utilities: Water, Sewers, Gas, Electricity, Telephone, Telegraph, etc.
6. Street Furnishings: Signs, Lights, Trees, Bridges, etc.

II. Public Property.

1. Administration: *a.* Federal.
b. State.
c. County.
d. City.
2. Education: *a.* Libraries.
b. Schools.

TO THE
MUNICIPAL
COUNCIL

3. Recreation: *a.* Playgrounds.
b. Recreation Centres.
c. City Squares.
d. Local Parks.
e. Large Parks.
f. Parkways and Boulevards.
g. Forest Reservations.

III. Private Property.

1. Semi-public: *a.* Churches.
b. Cemeteries.
c. Institutions.
d. Theatres, Hotels, etc.
2. Industrial.
3. Commercial.
4. Apartment.
5. Residential.

In the co-ordinated development of a city plan the underlying framework must be its means of communication. First the waterways must be determined, as they are rather rigidly fixed by the topography. Then the railroads, which are also located in large measure by existing grades, must be so planned as to best serve the needs of passengers and freight, bringing them close to their ultimate destinations. Finally, the thoroughfares must be laid out,—the net of traffic streets that will give access by foot, vehicle, or electric car to every portion of the city. The principal highways will need to be made wide to accommodate heavy traffic, so that it will thus find it preferable to keep off the minor streets. And these highways will be fixed far in advance of building in order to assure through connections.

Given such a plan, the next concern will be for the provision of homes and places to work,—the residential and the commercial and industrial quarters, which should each be planned to fit its peculiar needs. A certain type of street plan is best adapted to factories, another to office buildings, and a third to workingmen's homes. If the class of building is determined in advance, great economies will result from this differentiation, and each section will benefit by having its special plan. The improvement of the working places

and homes themselves should next be considered, for they constitute the normal environment of most of the city dwellers. Industrial welfare and housing are each in themselves subjects demanding exhaustive study.

The intense activity of city life and the increasingly artificial conditions under which its citizens live make more and more essential the introduction into daily life of recreation,—the complete change and relaxation for tired nerves afforded by play and the appeal to nature. Such recreation facilities are for the most part to be provided by the city's park system, though school centres, public baths, and other agencies may contribute no small share of the opportunities for play.

Finally there will be needed in the modern city a large number of administrative and other public and quasi-public buildings, such as the city hall, post-office, railway stations, institutional buildings, and the like, over whose design and location more or less direct control can be exercised.

The architectural treatment of individual buildings has recently been raised to a high standard in the United States. But the opportunity for an immeasurably enhanced effect due to the grouping of several buildings is as yet seldom availed of, despite the numerous reports lately issued in various cities urging this principle. In a rapidly growing city such as Houston reconstruction is frequent, and, if these occasions are utilized to erect buildings on locations conforming to prearranged plans, in a few years monumental civic centres will be produced without extra outlay, in place of the usual haphazard "spotting" of public buildings about the city.

In the rare cases where a new city is created with a certainty of becoming great, it is possible at the start to adopt a plan adequately meeting future requirements. But most cities spring from small beginnings, and must therefore be continually reconstructed to meet the later conditions. Foresight, however, would save many of the mistakes and wasteful expenditures otherwise apt to be made. And in the case of Houston great increase in size is so assured that plans can be drawn along very broad lines. In fact, relatively little expensive reconstruction is needed to supplement the development of the present unbuilt sections in the formation of the greater city. Houston's problems can now be dealt with before the serious mistakes are made which have hampered so many American cities.

In the present report these problems are considered in relation to their immediacy. The report proper is divided into three sections. Existing conditions are first taken up, under the head of *The Survey*, followed by the detailed proposals for civic development, under the head of *Physical Plans*, and lastly ways and means of accomplishment, under the head of *Legal Aspects*. In the short time devoted to their study and with the limited surveys feasible many phases are touched upon very slightly, simply indicating a few of the broad principles involved and their relationship to other features of the plan. Emphasis is placed on conditions where immediate action is vital and on certain general subjects for the purpose of starting discussion and preparing the way for future intelligent action.

Much has already been well done; and much has been done that cannot readily be changed, and must be recognized as a fixed limitation to the ideal plan. Many fundamental improvements, such as paving, sewerage, and street cleaning, are now actively under way, and will not be further considered in this report. Certain evils common to other cities do not exist in Houston, such as the smoke nuisance, which is at present obviated by the general use of fuel oil. But Houston is far behind other progressive cities in certain respects, notably in its park system, and should act at once to remedy these conditions.

In the development of a city as an organic unit serving its inhabitants, the need of providing adequate recreation facilities has in the past twenty-five years become quite generally recognized throughout the United States. Many millions of dollars have been spent in developing park systems, not always along the most economic lines, however, since often little or no plan has been adopted in advance. As the acquisition and maintenance of a park system involves the expenditure of considerable amounts of the city's funds, it is evident that foresight must be exercised to attain the greatest results.

The parts of the system must be so correlated that each portion will serve as completely as possible the particular needs it is meant to fulfil, and so that the system as a whole may meet the various requirements of the entire community. Thus it will be seen that the park lands will derive their chief value from the use made of them, though they may also serve the economic purpose of redeeming land values, thereby paying for their cost in increased taxes.

The use made of the parks ranges from the highly organized play of the small children's playgrounds and recreation centres to the complete restfulness and simple appeal of natural landscape in reservations of forest, meadow, and valley. This use must be accurately forecasted, and no compromise allowed to interfere with the primary purpose of the park. In every case the question is to be asked,—Is the purpose of the park fulfilled? Is it used? Failure to meet these conditions is expensive at any price, even though the land in question may have been offered at a very low figure. Success will result from careful planning and a continuous policy in park acquisition, improvement, and maintenance.

Of vital importance will be the provision for the play of the smaller children, on grounds in connection with the schools, and of the larger children and adults at recreation centres to be located within reach of all the inhabitants. Squares and local parks will enhance the attractiveness of sections in which they occur, but the backbone of a park system for Houston will naturally be its bayou or creek valleys, which readily lend themselves to parking and cannot so advantageously be used for any other purpose. These valleys intersect the city and surrounding country in such a way as to furnish opportunity for parks of unusual value within a comparatively short distance of most of the residential areas, including those of the future as well as the present.

The normal type of bayou park will include a roadway as a boundary and parkway drive on the crest of the valley slope on either side, walks on the slope, and occasional lawns and playfields among the wooded areas. All the bayous should be parked except where utilized for commerce. There may be enumerated many reasons for this. The bayous are natural parks already. Tree-growth and grass are good even in populous sections; the valleys include the only scenery with slopes, while occasional narrow bends furnish level playfields. A relatively small acreage in park grounds embraces complete landscape units without obtrusion of the city, as the view from within the valley includes the immediate slopes and trees on the crest only. The long, narrow strips along the bayous will serve many communities; continuous walks can be laid out in naturalistic landscape; parkway drives along the banks of the bayou are capable of unusually park-like treatment; and long park frontages for pleasant homes will be provided. The effect on land values and tax returns is equally beneficial, as bayous have little



BUFFALO BAYOU,—WATER-WORKS PROPERTY
 A Tract already owned by the City, but not utilized as a Park



A PARK IN USE,—THE PARADE, MINNEAPOLIS
 Properly designed to serve the Multitudes



WHITE OAK BAYOU FROM M. K. & T. STATION
 Showing Destruction of Landscape by Private Encroachment, and a Large Open tract Available for Recreation
 in the Heart of the City



BUFFALO BAYOU IN MAGNOLIA PARK
 An Unspoiled Bend which may be preserved as a Breathing-spot in the Industrial Region

value under private control, and depreciate surrounding property through their poor development, but as parks they greatly enhance the value of their frontage and the neighborhood in general.

In addition to these continuous bayou parks there will be several parks along the commercial bayou for the industrial population of that quarter, and at least one large forest park forming a part of the inner system. Later additional forest tracts will be acquired as permanent reservations of wild scenery. Connecting the parks proper there will be broad parkways,—strips of park-like land carrying the effect of the parks far beyond their confines and encircling the district with a drive of great beauty.

From the city, approaches to the parks will be formed by certain wide streets designated as boulevards and restricted as to traffic. Furthermore, all the great thoroughfares spreading out from the city will be widened to include strips of green, and will be planted with trees, thus forming parked highways, with fresh air and verdure replacing the dust and glare along these much-travelled routes.

It will be evident that such a program for development as this cannot be effectively undertaken unless a comprehensive scheme of procedure be worked out in advance. It will be found at the outset that extensive civic improvement will be greatly facilitated by the exercise of several powers not now contained in the city charter. The development of the city plan should be in the hands of an Improvement Commission composed of several city officials and two or three private citizens, with authority to enforce its provisions. The cost of improvements should be apportioned to the property benefited. Otherwise, the city will constantly be drawing on its credit to the enhancement of private property values at its expense.

A charter amendment appears to be the most satisfactory method of putting these provisions into effect, but meanwhile much can be done in certain directions to further the plan. Step by step the procedure may conform in a general way to the following program:—

1. The appointment of the Park Commission, which has already been made.
2. The Park Commission presents report of Landscape Architect, covering survey, tentative plans, and legal and financial proposals for civic improvements.

3. Certain partial plans are adopted for initial action and detailed plans prepared based on accurate surveys.

4. Superintendent of Parks appointed, and department organized under him to survey, carry out, and maintain parks and similar improvements. Director of Recreation appointed to supervise organized play.

5. Legal and financial proposals adopted.

6. Improvement Commission appointed, with jurisdiction over location and treatment of parks and other civic improvements.

7. General improvements planned in detail and carried out.

8. In co-operation with the city, civic committees of various organizations should be formed to actively crystallize public opinion and initiate undertakings.

With the \$250,000 of park bonds authorized by vote of the people last July, funds are available for a substantial beginning in the acquisition of land, especially in the remedying of the most vital defects. The greatest results will be attained if attention is directed first to the acquisition of three recreation centres within the present built-up districts of the north-east, east, and south quarters of the city. Then, on the basis of accurate surveys and taking plans, bayou property should be acquired along Buffalo Bayou east of Sam Houston Park, where it penetrates close into the heart of the city, and along White Oak Bayou west of Houston Avenue, where land is still very cheap and awaits the advent of the parkway to make the district available for building.

It is believed that the park system can best be maintained by a single executive, subject only to the policies to be outlined for the present by the Park Commission, and later by the succeeding Improvement Commission, without an intermediate park board. Concentration of responsibility will result in attracting a more efficient man to this important post. Thus, in other cities with similar light initial requirements in administration, young men with broad education, but relatively little experience, have often been found capable of taking hold and growing into the position as it developed. Such a man should be appointed at Houston at an early date, to prevent delay in the work. Lack of continuity of effort has nullified many admirable schemes elsewhere, so that too much stress cannot be laid upon the ways and means and the procedure necessary to carry out the plans for Houston's development.

II. THE SURVEY

In a brief study of the conditions which exercise a greater or less control over the development of Houston the data brought together may be classified under the following heads: 1. Population; 2. Distribution of Population; 3. Development of Private Property; 4. Range in Land Values; 5. Financial and Miscellaneous Statistics; 6. Climate; 7. Park Statistics; 8. Playground Statistics; 9. Future Requirements in Civic and Social Surveys.

1. The increase and varying composition of the population of Houston is indicated in Table I.

TABLE I.

HOUSTON AND HARRIS COUNTY, POPULATION, 1850-1910, BY RACE

Census of	1850.	1860.		1870.		1880.	
	Popula- tion.	Popula- tion.	% Inc.	Popula- tion.	% Inc.	Popula- tion.	% Inc.
Houston	2,396	4,845	102.2	9,382	93.6	16,513	76.0
Houston, white				5,691		10,026	76.2
Houston, colored				3,691		6,479	75.5
Percentage, white				60.6		60.7	0.2
Harris County	4,668	9,070	94.3	17,375	91.6	27,985	61.1
Harris County, white	3,756	7,008	86.6	10,865	55.0	17,160	57.9
Harris County, colored	912	2,062	126.1	6,509	215.2	10,816	66.2
Percentage, white	80.4	77.3	*3.9	62.5	*19.1	61.3	*1.9

* Decrease.

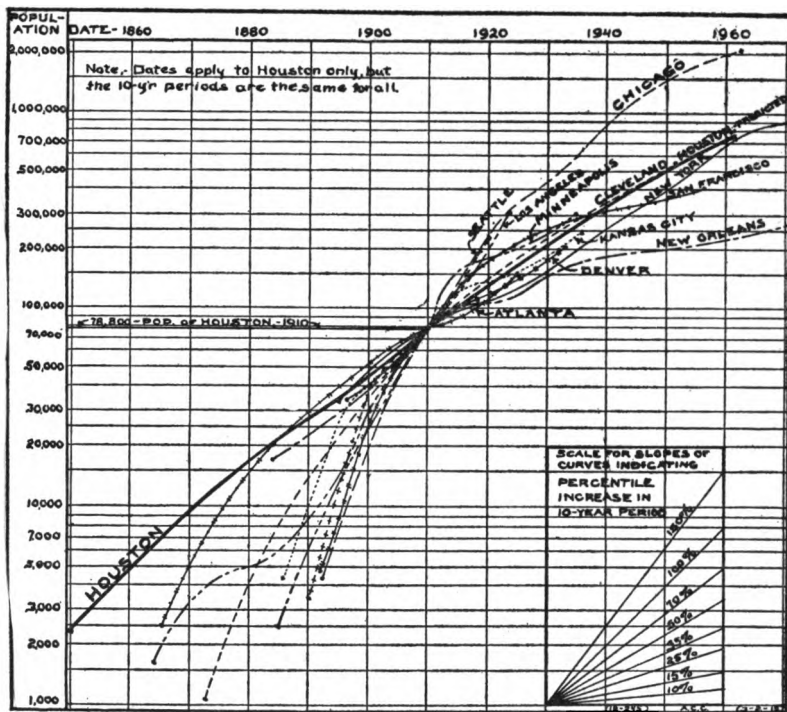
Census of	1890.		1900.		1910.	
	Popula- tion.	% Inc.	Popula- tion.	% Inc.	Popula- tion.	% Inc.
Houston	27,557	66.9	44,639	62.0	78,800	76.6
Houston, white	17,187	71.4	29,979	74.4	54,832	82.9
Houston, colored	10,370	60.1	14,608	40.9	23,929	63.8
Percentage, white	62.0	2.1	67.2	8.3	69.6	3.6
Harris County	37,249	33.1	63,786	71.2	115,693	81.4
Harris County, white	23,727	38.8	43,892	85.0	84,660	92.9
Harris County, colored	13,522	25.0	19,894	49.1	30,921	55.4
Percentage, white	63.7	3.9	69.0	8.3	73.2	6.0

It will be noted that the colored element has decreased from decade to decade, but at a slow rate, and it still constitutes over thirty per cent. of the entire population of the city. The figures for Harris County vary in almost the same ratio, thereby proving conclusively that the deductions from the figures for the city are not warped by using its arbitrary limits. It will be noted, however, that in the last two decades the county has grown more rapidly than the city, this being evidently due to the fringe of suburbs, which organically are a part of the greater city, but, as is typical of the majority of American towns, are not included in its political boundaries.

The inherent possibilities for extraordinary growth in the future are impossible to gauge, but a scientific guess may be made on the basis of the growth of other cities in the United States which were similarly situated at the time they had a population no greater than that of Houston at the present time. For this purpose the figures of the census must be used, though they are based on political divisions, and often exclude suburban districts which virtually form a part of the greater city. The census of 1910 shows that the suburbs of cities of over 100,000 have nearly thirty-four per cent. of the population of the cities proper, whereas Houston's suburbs are about one-fifth its size.

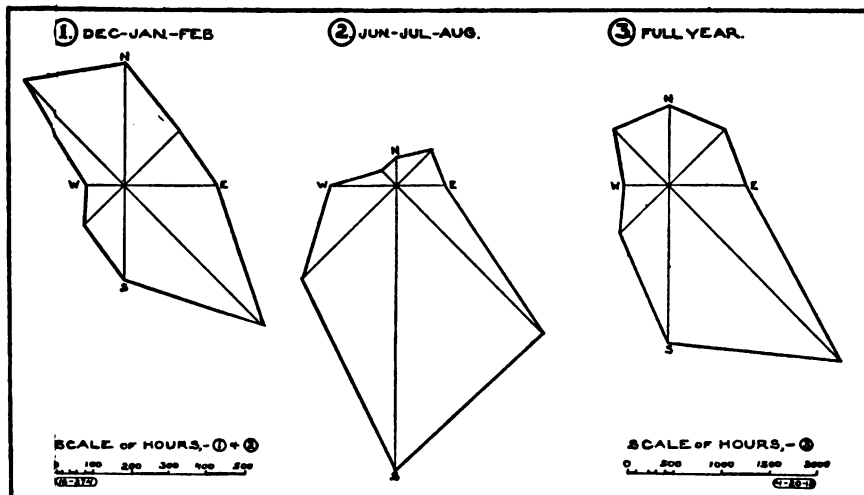
For comparison those cities have been taken which have no larger city within a radius of three hundred miles, there being in 1910 but fourteen such cities larger than Houston. In the accompanying diagram the population curves of the eleven largest of these have been plotted in a way to facilitate comparison and indicate graphically what Houston's growth would be if it should increase in succeeding decades at the rate that any of these cities increased from the time it was of Houston's size. The mean of these eleven curves corresponds very closely to the heavy black line in the diagram, which has been drawn to conform to the empirical proposition that Houston's rate of growth may be expected to decrease by ten per cent. in each decade. Its numerical increase will nevertheless be successively larger. Using this formula, its probable population is indicated in Table II.

It is believed that this is a conservative estimate, especially for the next ten or twenty years, but it furnishes a reasonable basis in determining the needs of the community and its ability to finance improvements.



HOUSTON — PROBABLE INCREASE IN POPULATION

The Comparative Growth of Cities having Large Tributary Areas (no Larger City within 300 Miles) is indicated by the Curves of Population, all coinciding at the Common Point of 78,800



HOUSTON—RELATIVE DURATION OF DIFFERENT WINDS

The Length of the Light Lines indicates the Duration from Each of the Eight Main Points

TABLE II.

HOUSTON,—CONSERVATIVE PREDICTION OF GROWTH, 1910-1962

Year.	1910.	1912.	1914.	1916.	1918.	1920.
Population	78,800	87,468	97,090	107,770	119,625	132,699
Decennial Increase %	76.6	*11.0	*11.0	*11.0	*11.0	68.4

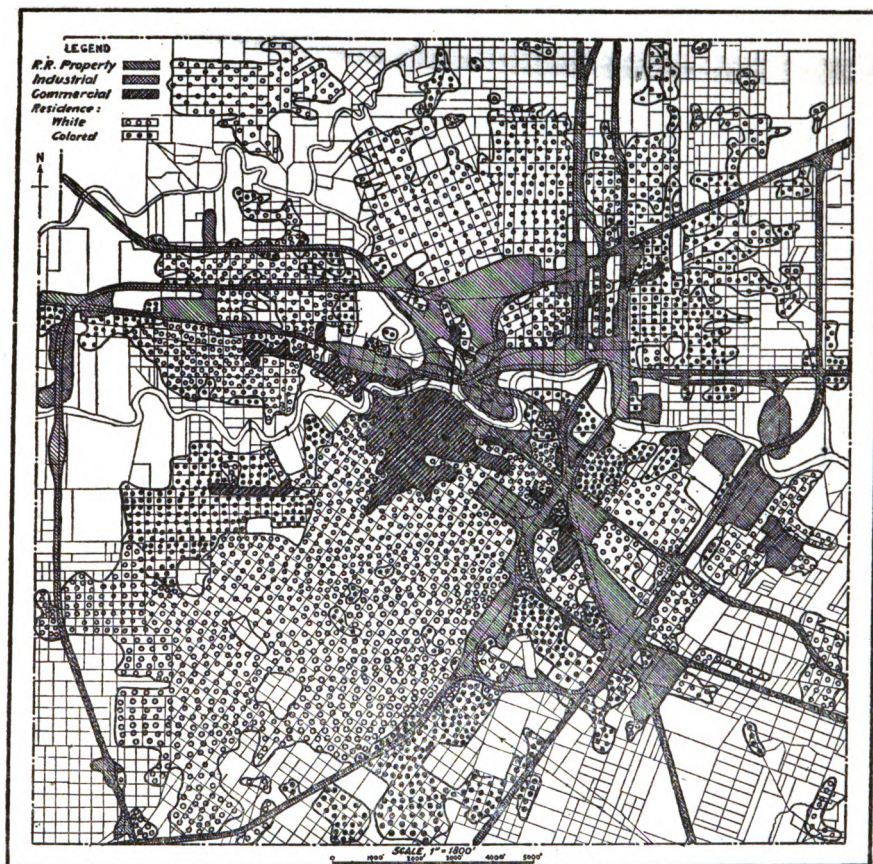
* Biennial increase.

Year.	1930.	1940.	1950.	1960.	1962.
Population	216,308	335,926	502,980	717,751	765,840
Decennial Increase %	61.5	55.3	49.7	42.7	*6.7

* Biennial increase.

2. The present distribution of this population in the city is shown on the accompanying map of the Development of Private Property. Of interest is the location of the residence areas in an almost complete circle about the central district. The information in regard to the white and colored sections of the residential area is vital in the determination of school, playground, and park locations. The varying density of population is another factor of importance. While it is realized that more precise data would show a somewhat greater range than has been recorded, it is noteworthy that the distribution is unusually uniform, varying only from eleven to thirty-eight people per acre in its extremes. The preservation of this rather low density will ever be a concern of the city plan, for it is evidently caused largely by climatic conditions, which cannot safely be disregarded. The density for the city as a whole was, in 1910, 7.7 per acre, comparing favorably with other cities of similar size; but great reliance cannot be placed on this figure, owing to the varying amounts of vacant land within the political boundaries.

3. In the development of private property the present zones of building indicate clearly the direction of the city's growth in the past and to a certain degree the probable extension of that growth in the near future. The star-shaped spreading out of the commercial sections along the main highways, except where prevented by the topography or such artificial obstructions as railroad yards, is typical of all towns. The advance of the principal retail section out Main Street towards the best residential section is an-



HOUSTON—DEVELOPMENT OF PRIVATE PROPERTY

Compiled from Various Sources, 1907-1912, to indicate Existing Zones of Building and Density of Population
Each o or • represents 25 People

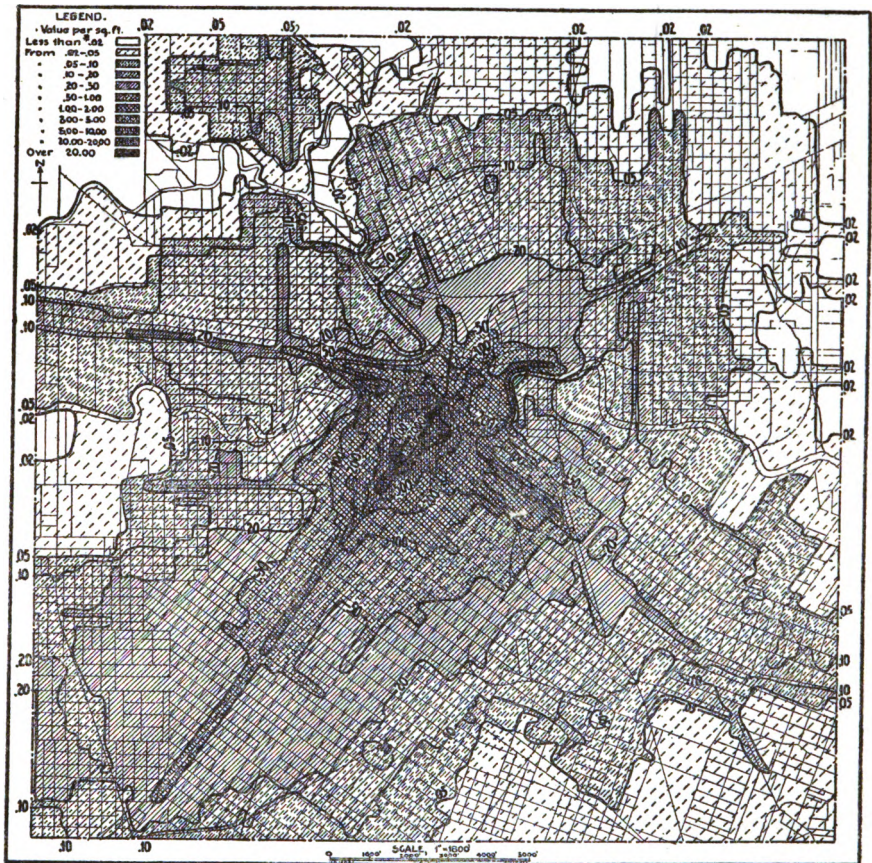
other common feature in American cities. The factories have naturally kept close to the railroads and the navigable bayous, where transportation is cheap. The railroads themselves have spread out over the city like a vast spider's web, and include an unusually large area in their yards and shops.

4. A more certain forecast of the direction of the city's growth is afforded by a study of the Range in Land Values shown on the accompanying map. For much of the value of land in Houston is evidently not based on present rentals, but upon the increase in rental value which real estate operators predict will take place with the future growth of the city.

On this map the statistics in the assessor's office, compiled under the "Somers System," are shown in such a manner as to be serviceable for comparative study. By plotting the assessed values for each block and drawing lines through lands of equal value, the range is graphically shown, from less than two cents per square foot in the outskirts of the city to fifteen hundred times that amount on the principal thoroughfare.

In placing public buildings, opening or widening thoroughfares, locating park areas, and many other civic improvements, comparative land values are often of controlling importance. The existence of cheap lands along the valleys of the bayous or creeks close into the heart of the city is noteworthy, as these lands are of great relative value for park purposes. The marked tendency of higher values to creep out star-fashion, especially on the south side, emphasizes even more strongly than the preceding map the trend of development along the main arteries of travel. If similar diagrams are prepared in successive years, the tendencies in land values will be clearly indicated. A further map, upon which would be plotted increases or decreases from year to year, would at a glance indicate the so-called "blighted district," where land values are stationary or falling, the "boom" sections, where abnormal rise is taking place, and the regions of normal healthy improvement. It is believed that the study of data thus exhibited will go far as a check on irrational city development.

5. In Table III. are gathered such financial and miscellaneous statistics as have more or less bearing on the problems of city planning.



HOUSTON—RANGE IN LAND VALUES

Lines pass through Lands of Equal Value. Figures are based on Assessment made in 1912 under Somers System

TABLE III.

HOUSTON STATISTICS, 1910-1912

Year.	1910.	1911.	1912.
Population of city (estimated) . .	78,800	83,000	87,500
Population, including suburbs . .	95,000	102,000	109,500
Death-rate for city, per 1,000 . .	—	13.5	14.1
Death-rate, whites only	—	10.3	11.2
Assessed valuation	\$63,746,692	\$77,294,351	\$96,000,000
Percentage of full values, approx.,	33⅓%	33⅓%	{ 60% on land 25% on bldgs.
Tax-rate, city tax, per \$1,000 . .	\$1.70	\$1.70	\$1.40
County and State tax rate	0.74	0.86½	0.86½
Total revenues of city	\$1,597,314	\$1,912,020	—
Annual appropriation for parks . .	9,000	10,000	\$10,000
Bonded city debt, February 28 . .	4,819,000	4,919,000	5,895,000
Bonds issued for parks	—	—	—
Legal limit of tax rate (including sinking funds and interest on bonds)			\$2.00

Houston Industries: Cotton, Oil, Rice, Lumber, Railways, Banking.

Of particular interest is the check on the city's borrowing capacity, which, unlike the fixed percentages of most cities, is limited solely by the provision that the total tax rate, out of which both the current budget and both sinking funds and interest on bonds are to be paid, may not exceed two dollars.

6. In comparing Houston with other cities climatic conditions should be noted. In Table IV. data for four other cities and Houston present in skeleton form the range of climate in the United States.

The relative warmth of Houston is apparent, though this is partly offset by the prevailing south-east winds of rather high intensity. A large percentage of possible sunshine with small number of days of rain, yet great total rainfall, are desirable conditions for the city dweller. The latter two factors, however, emphasize Houston's need for adequate storm-sewers to carry off the sudden downpours. Relatively high humidity and temperature suggest the great use apt to be made of the parks for ten or eleven months in the year instead of five or six, as in the North.

TABLE IV.
COMPARATIVE STATISTICS OF CLIMATE

City.	Houston.		Boston.		St. Paul.		Kansas City.		San Francisco.	
	Year.	Jan. July.	Year.	Jan. July.	Year.	Jan. July.	Year.	Jan. July.	Year.	Jan. July.
Temperature, mean	69	52 83	49	27 72	45	12 74	54	30 78	56	50 59
Mean of Maxima . . .	78	61 92	57	35 80	53	20 83	63	38 87	62	55 65
Mean of Minima . . .	58	42 73	41	19 63	35	2 62	45	22 69	50	45 53
Maximum	108	80 104	102	70 101	104	51 104	106	69 106	100	73 93
Minimum	6	18 55	-13	-13 46	-41	-41 45	-22	-17 54	29	29 47
Prevailing wind	S.E.	S. S.	W.	W. S.W.	N.W.	N.W. S.E.	S.E.	N.W. S.	W.	N. S.W.
Average intensity m. per hr.	G. 11	12.0 12.0	10.8	11.0 9.2	8.6	9.2 7.2	9.1	9.4 7.7	9.7	7.2 13.4
Sunshine, % of possible . . .	G. 63	53 71	55	51 60	54	49 66	57	50 64	63	53 71
Number days of rain	95	8 11	130	12 11	116	9 10	104	7 9	69	11 0
Total rainfall, inches	48.2	4.4 3.7	43.7	3.9 3.4	28.6	1.0 3.0	36.4	1.3 5.0	22.5	4.5 0.0
Mean humidity, 8 P.M. . . .	78	83 74	71	70 72	63	76 54	63	71 59	73	75 77

G., Galveston.

The accompanying diagram of the duration of different winds indicates this factor graphically, showing at a glance its effect upon the proper exposure of buildings and the distribution of factories. Southerly winds prevail in summer, but in winter there are frequent north-west as well as south-east winds.

7. Houston's present small park acreage is given in Table V., the total of her five parks being but 112 acres, which are largely unimproved.

TABLE V.
HOUSTON,—PARK STATISTICS, 1912

Park.	How Acquired.	Cost.	Valuation.	Acreage.
Sam Houston Park .	Purchased by city	\$30,000	\$116,000	29.0
Cleveland Park . . .	Purchased by city	50,500	50,500	56.0
E. Baldwin Park . .	½ donated; ½ purchased	43,300	50,000	5.0
Settegast Tract . . .	Donated	—	10,170	1.5
Lawrence Tract . . .	Purchased by city	21,000	21,000	20.6
Total		\$144,800	\$247,670	112.1

Comparative statistics of twenty progressive cities are given in Table VI., which show the relatively large population per acre of parks in Houston, there being 685 people per acre as compared with an average of 110 in these other cities. Park maintenance per capita is also low, being twelve cents as compared with an average of forty-four cents.

TABLE VI.
PARK STATISTICS, 1910
TWENTY PROGRESSIVE CITIES COMPARED WITH HOUSTON

City.	1910. Population.	Park Acreage.	Population per Acre.	Mainte- nance per Annum.	Mainte- nance per Acre.	Mainte- nance per Capita.
Washington . .	331,069	3,100	107	\$379,673	\$122.46	\$1.17
Los Angeles . .	319,198	3,800	83	148,000	38.99	.46
Minneapolis . .	301,408	3,391	89	112,336	33.13	.37
Kansas City . .	248,381	2,247	110	135,810	60.43	.55
Seattle	237,194	1,056	224	141,727	134.21	.59
St. Paul	214,744	1,491	143	92,863	62.26	.43
Toledo	168,497	980	188	22,966	23.49	.12
Worcester . . .	145,986	1,059	138	34,268	32.34	.23
New Haven . . .	133,605	1,100	121	38,000	34.54	.28
Omaha	124,096	917	135	72,180	78.63	.58
Spokane	104,402	945	110	37,793	39.99	.36
Hartford	98,915	1,333	73	48,500	36.38	.49
Wilmington . .	87,911	467	186	17,986	38.43	.21
Des Moines . . .	86,368	700	123	57,585	81.98	.69
HOUSTON	78,800	115	685	9,644	83.86	.12
Utica	74,419	550	135	14,059	25.55	.18
Oklahoma City .	64,205	1,784	36	8,000	4.98	.11
Harrisburg . . .	64,186	749	85	27,985	37.36	.44
San Diego	39,578	1,680	23	26,000	14.47	.65
La Crosse	30,417	400	76	4,141	10.35	.14
Colorado Springs,	29,078	2,566	11	23,000	8.94	.79

8. The school yard would seem to be the normal place for the play of the school children at recess, after school hours, and during the vacation periods. There are therefore tabulated in Table VII. the existing school sites and enlargements and additions contemplated by the School Board under a recent bond issue, together with the present registration and the acreage available for play at present and as proposed by them.

TABLE VII.

HOUSTON,—SCHOOL PLAYGROUND STATISTICS, 1912

School.	Present Registra- tion.	Acreage for Play.	Proposals.	Proposed Play Acreage.
Rusk	441	1.5	New site purchased	1.5
Lubbock	533	0.0	$\frac{1}{2}$ block to be purchased	0.7
Austin	440	0.0	$\frac{1}{2}$ block <i>can</i> be purchased	0.7
Longfellow	505	0.7	New site to be purchased	0.7
Allen	485	0.7		0.7
Fannin	791	0.3	No provision	0.3
Taylor	520	0.0	New site proposed	5.0
Dow	626	0.0	New site proposed	0.7
Hawthorn)	596	0.0	Proposed to use old site for pri- mary only	0.3
New Site)		1.0	New school site, a large block	1.0
Travis	313	1.0		1.0
Lamar	560	0.9		0.9
Sherman	595	0.8		0.8
Jones	510	0.0	Proposed to buy rest of block	0.7
Reagan	349	0.4	Proposed to buy more ground	0.8
Eastwood Site . . .			Proposed new site	4.0
Hamblin Site . . .			Proposed new site	5.0
Douglas (colored)	596	0.7		
Gregory "	685	0.3		
Washington "	319	0.0		
Harper "	166	0.2		
Hollywood "	94	0.0	{ Proposed new site to the east, 1 block	
Bruce "	350	0.0		
Dunbar "	421	0.4		
Langston "	363	0.0		
Luckie "	320	0.0		

9. While the tables given above include much of the data having the most direct bearing upon Houston's development, far more extensive surveys should be made before many of the detailed plans touching varied phases of city-planning problems can be intelligently prepared and carried out. These surveys should embrace a variety of information, which may be grouped under four main heads: *A. Topographic Survey; B. Social Conditions; C. Statistics of Circulation; D. Miscellaneous Statistics of Building Conditions, etc.*

A. Accurate topographic surveys and maps are essential as a basis for all physical plans. These can best be carried out comprehensively over the whole city, so that standard maps can be prepared once and for all, thereby avoiding repeated expenditure as each small improvement is undertaken. The most effective procedure in carrying out such a survey will be: first, to establish reference points in the city and gradually throughout the Metropolitan District by accurate triangulation and precise levelling; second, to refer all existing and future monuments and topography in general to these reference points by means of co-ordinates; third, to locate street and property lines; fourth, to establish a filing system of records, surveys, data, etc.; fifth, to prepare standard maps of a uniform size and at a uniform scale of, say, two hundred feet to the inch, showing topography, contour lines, and similar data. These maps should be printed on a thin, firm paper, which may be used to make blue prints to show any improvements or changes drawn upon the plan. These standard maps will probably find a considerable sale to the public.

The first cost of such a survey will be large, but it will in a very few years more than make up for this outlay by the saving in expense for repeated isolated surveys that would otherwise be necessary in carrying out civic improvements. Though conditions in Houston differ in many ways from those of other cities, it is believed that the figures of the cost of the topographic surveys in New York City and Baltimore will furnish a sound basis for a rough estimate.

In the Borough of Queens, New York, there are 75,111 acres, for which the final estimate of the cost of the survey, including the preparation of maps of the street system and grades, was \$8.06 per acre for field work and \$2.23 for office work, making a total of \$10.29 per acre and \$773,000 for the entire borough. In Baltimore 12,800 acres were surveyed and mapped in two years at \$7.81 per acre,

or a total for the region of \$100,000. Allowing \$8 per acre, the cost of surveying and mapping the present city of Houston should not greatly exceed \$80,000. With this as a basis the suburban districts need not be undertaken until the demand comes for them to be included in the standard maps.

B. A thorough study of social conditions furnishes an exact knowledge of the needs of the community not otherwise obtainable, and, if maintained from year to year, forms a reliable index of the success of civic improvement, governmental as well as physical. Much of this information is already collected and may be compiled from the United States Census Reports and other similar sources. A survey of Houston's housing conditions was recently made by the Men and Religion Forward Movement under the direction of Mr. J. P. Kranz. A more exhaustive social survey should include the following data, compiled for each neighborhood:—

1. Statistics of population, by age, sex, nationality, parentage, and conjugal condition, for a period of years.
2. Education,—schooling and illiteracy, by age, sex, and nationality.
3. Health,—birth-rate, death-rate, causes of death and sickness, by age, sex, and nationality.
4. Housing:—
 - a.* Size, character, and facilities of houses.
 - b.* Water and sewerage.
 - c.* Tenements and rooming houses, number and character.
 - d.* Room-overcrowding.
 - e.* Number of houses owned and rented.
 - f.* Building associations.
 - g.* Housing laws.
5. Industrial conditions:—
 - a.* Classes of industries.
 - b.* Number of employees, by age, sex, and nationality, skilled and unskilled.
 - c.* Wages, apprenticing, pensions, and insurance.
 - d.* Steadiness of work, unemployment, and strikes.
 - e.* Safety and health in employment.
 - f.* Welfare work,—lunch-rooms, rest-rooms, baths, club-rooms, etc.
6. Settlement houses.
7. Charities and relief.

8. Statistics and causes of poverty, dependency, and crime.

C. Data covering various elements of circulation are essential in determining the need of such improvements as increased terminal facilities and widening existing streets or cutting through new ones, to relieve traffic. This information may be classified as follows:—

1. Railway and waterway tonnage and traffic.
2. Electric railway statistics,—seats, schedules, etc.
3. Street traffic “counts” at various points.
4. Pavement,—cost and service of different types.
5. Subsurface structures, utilities, etc.,—cost and value.

D. A variety of other data will be worth obtaining, such as:—

1. Public buildings apt to be required in the future, estimated size, character, etc.
2. Building code,—conditions governed by it and governing it. Without such data, tampering with the building code is of very uncertain benefit to the city.
3. Sources, effects, and means of mitigation of nuisances.
4. Character of surrounding country,—percentage in farms, forest, etc., and tendencies.

It is probably impossible at present to gather all or even the major portion of the information suggested in this outline, but, whenever opportunity offers from time to time, it should be availed of to the fullest extent in increasing a knowledge of Houston's civic conditions.

III. PHYSICAL PLANS

In the more detailed consideration of plans for Houston's development many features will be touched upon which may not be undertaken for a number of years. But it is important that these phases be considered, as well as the more imminent improvements, so that the ultimate relation of the various component elements of the city plan shall form a well-balanced whole. The proposals will be taken up under the following main divisions:—

1. Park System; 2. Street System; 3. Street Treatment; 4. Electric Lines; 5. Commercial Waterways; 6. Railroads; 7. Civic Centres; 8. Building Control; 9. Housing.

I. PARK SYSTEM

In order to secure an effective recreation system, parks must be carefully planned so as to fulfil particular purposes. They may therefore best be studied under a grouping based upon use, but modified to a certain degree according to location, whether central or outlying. Besides the inner and outer systems there will be local systems comprising those units which are to serve relatively small sections of the community and are to be repeated in each neighborhood. These constitute the first four divisions of the following classification:—

A. Playgrounds; *B.* Recreation Centres; *C.* City Squares; *D.* Local Parks; *E.* Inner Park System; *F.* Boulevards; *G.* Outer Park System; *H.* Forest Reservations; *I.* Other Open Spaces.

In this system the inner parks will naturally be the first to be acquired, followed by the outer ones as rapidly as the development of the city permits. The exact acreage involved cannot be determined until surveys have been made, but Table VIII. furnishes a rough estimate.

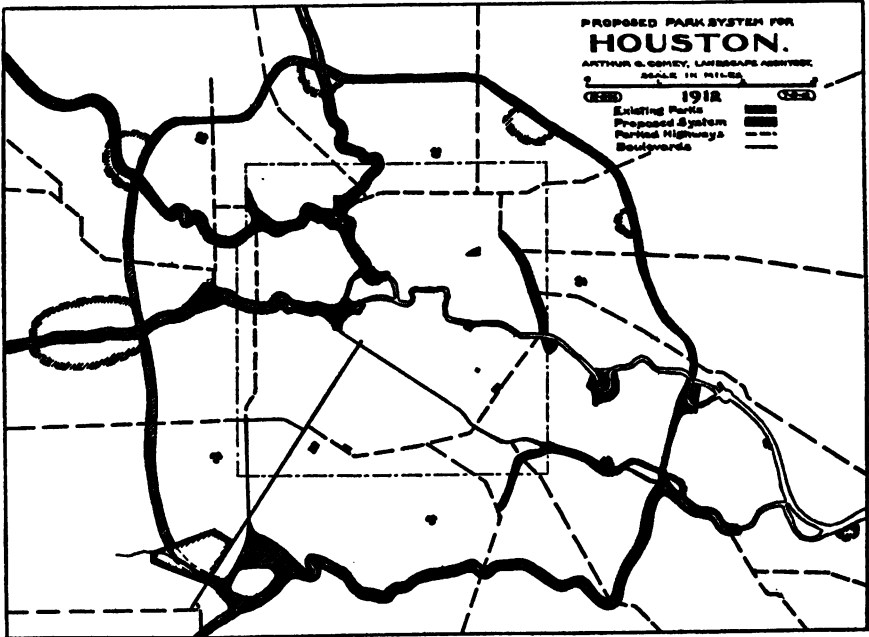
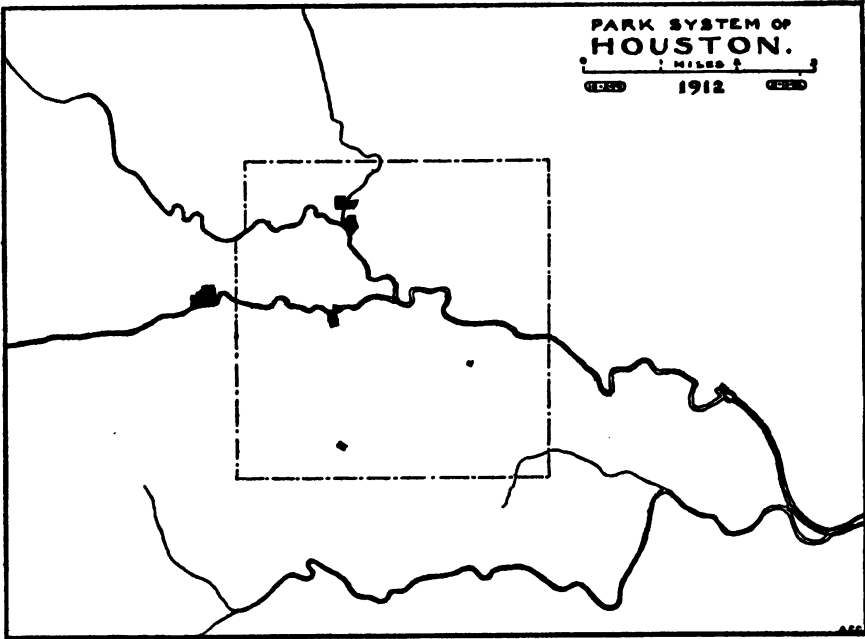
On the basis of 110 people per acre of parks, Houston should have in 1912 eight hundred acres, or the entire Inner System as proposed. By 1947, thirty-five years hence, the Outer System also should have been acquired, to keep pace with the growth in population. The general features of the Park System as outlined are indicated on the accompanying skeleton plan, and more in detail on the general plan at the front of this report.

TABLE VIII.

Park Area Proposed.	Length (miles).	Inner System (acres).	Outer System (acres).
Recreation Centres, etc.	—	60	65
Bayou Parks	—	25	85
Pines Park	—	190	—
Bayou Parkways:			
Buffalo	4.7	200	125
White Oak	6.4	200	300
Hollywood	3.2	50	175
East Branch	1.3	75	—
Evergreen	2.8	—	200
Bray's	9.0	—	650
Connecting Parkway	16.7	—	500
Forest Reservations	—	—	1,100
Total	44.1	800	3,200

A. PLAYGROUNDS for children should be provided within, at most, one-half mile of every child, as children will not go a greater distance for their play, and frequently even this proves too far for the younger ones. The increasingly close relation between play and education has fortunately, in part, been anticipated by the School Board, for, as a rule, school grounds have been provided of sufficient size to permit of play space for the smaller children. With these as a basis the opportunity is offered in Houston to develop an unusually complete playground system.

The distribution of school sites is indicated on the accompanying map. It will be noted that the half-mile circles, representing diagrammatically the effective radius of the playground, overlap at nearly all points where there are any children to be served. In providing for the future growth of the city, it is to be expected that adequate play space will be reserved with all the schools. In Table VII. (page 23) is given the acreage available for play with each school. This in nearly every case equals or exceeds seven-tenths of an acre, and provides more than the minimum standard of thirty square feet per child; and it usually approximates the far better standard of one hundred square feet. With the additional sites contemplated under the recent school bond issue there will be provided fifteen adequate grounds, the Fannin School yard alone being still insuffi-

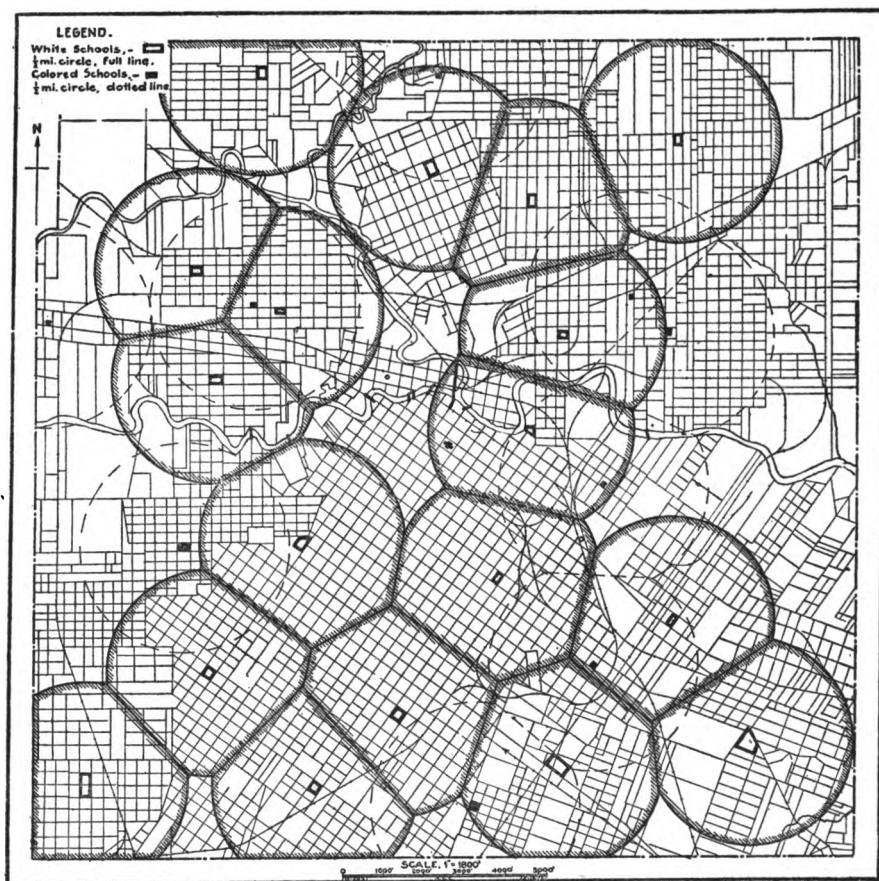


cient in size. As this school has at the same time the largest registration in the city, it will be desirable to secure a block of land nearby for play space.

On each ground a certain amount of apparatus should be put up,—swings, see-saws, giant stride, sand boxes, etc.,—but of far more importance will be the placing of the playground in charge of competent instructors, for it has lately been very clearly demonstrated that the one essential on a playground is the instructor. Without him or her the grounds are apt to become a nuisance rather than a benefit. But under efficient guidance the beneficial results may be increased many fold, and a relatively small piece of ground by careful management may be made to serve a larger number of children, who will be attracted by the presence of the instructor and the active play he induces. Over all should be exercised the supervision of an experienced Director of Recreation.

In considering the problem of recreation facilities for any Southern city, the need of providing for the colored portion of its population cannot be overlooked. Adequate play space has not been reserved around the colored schools, nor are there any proposals at present to change this condition. Playgrounds which will serve the colored children can, however, be located in each of the three main districts in which they live, one in Emancipation Park in the south-east, a second in Military Park in the north-east, and the third in a portion of the old disused cemetery on San Felipe Street in the west. The remainder of this cemetery would form a recreation park for the San Felipe section, as is now done by the other two parks in their respective districts.

B. RECREATION CENTRES ten to twenty acres in extent should be established at once, within one mile of every home, for the use of the larger children and adults. Experience elsewhere proves that, if, as is to be expected, Houston gradually develops a denser population, this number will have to be increased. Additional sites should also be reserved throughout the Metropolitan District while the opportunity still exists to secure unbroken tracts at a reasonable cost, though for the present at least it does not appear so essential that sites be designated for sections served by the outer park belt. The location of these future centres will depend largely upon the ease of purchase and the shifting requirements of the inhabitants. Their acquisition at this time is not urged,



HOUSTON—DISTRIBUTION OF SCHOOL PLAYGROUNDS

Circles are drawn with $\frac{1}{2}$ Mile Radius and represent Diagrammatically Areas from which Children will come to Each Ground

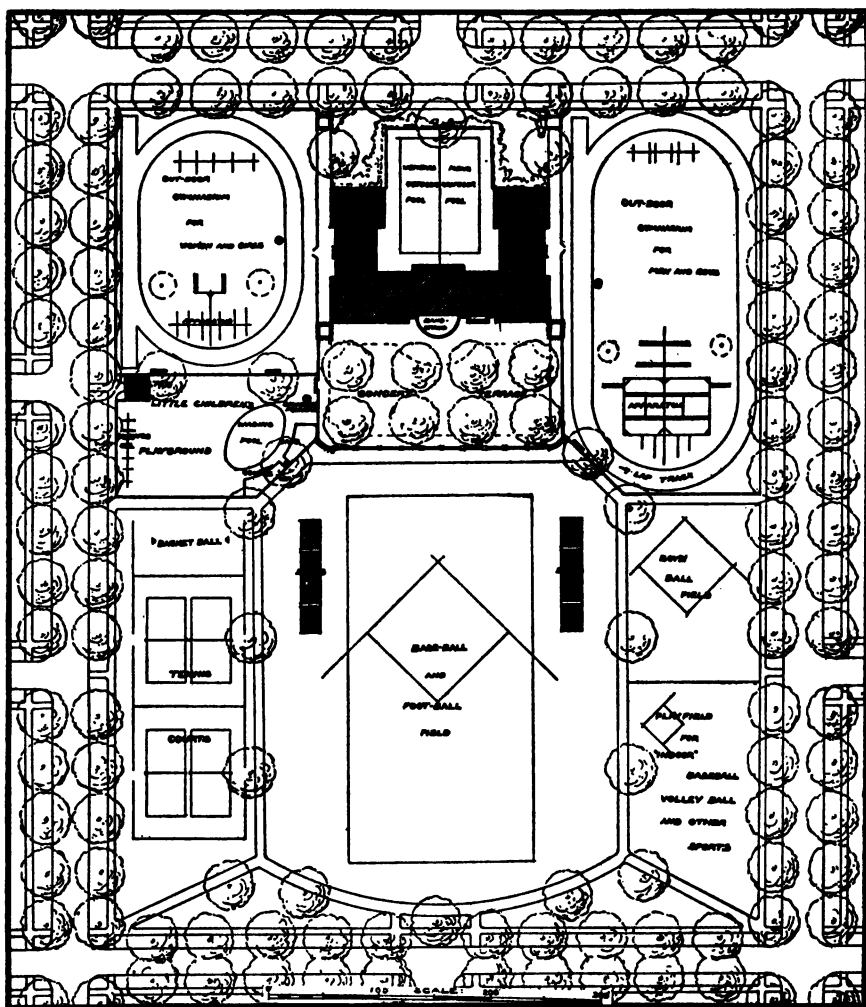
since the city's funds are required for many other projects and these additional grounds would not bring in returns at once.

The immediate needs are for five centres, one in the "Fifth Ward," another in the eastern part of the city, a third in the "South End," a fourth in or adjoining Sam Houston Park as it is enlarged, and the fifth in Highland Park. For the three centres isolated from parks a number of sites are at present available, which very nearly meet the requirements. Their acquisition should not be delayed, but should be the first concern of the recently approved \$250,000 Park Bond Issue.

As the community grows, at least three additional centres will be required in the outer districts, one in Cleveland Park for Brunner, Chaneyville, etc., one in Houston Heights, and one a mile or more east of the city limits, probably south of the Harrisburg Road, for Magnolia Park and the new suburbs which will inevitably spring up in that direction. The districts outside the effective radius of these centres will be served by centres placed in or contiguous to the outer park belt, at points where extra width assures the continuity of the park proper.

As the recreation centres are acquired, there should be a limited amount of improvement at once, carried out in such a manner as to harmonize with the ultimate very intensive development that will be required. The plan should contemplate a field house, outdoor and indoor gymnasias and swimming-pools, a concert grove, ball fields, and smaller grounds for tennis, basket-ball, "indoor" baseball, and other games, for men and women and boys and girls of all ages. The accompanying sketch plan shows the sort of development possible on a typical "large block," equal to six city blocks on the south side. Such recreation centres will form one of the most vitally beneficial elements of the entire park system.

C. CITY SQUARES are desirable adjuncts to the city plan, providing breathing and resting spots scattered throughout the city. With their shaded walks and possibly a fountain splashing water, they afford a relief to the paved streets and have a tendency to increase land values within a short radius and to cause the immediate frontages to be improved. A city without such squares is undeniably deficient, yet it is difficult to provide them systematically, and individually they can hardly be considered fundamental to the city plan.



HOUSTON—STUDY FOR A RECREATION CENTRE

Triangles and odd bits between streets can often be treated in a similar fashion to the larger squares, with possibly a limited play space, but for the most part they will furnish place for a few seats and walks only, and often will be simply a green spot affording an attractive relief to the eyes. There are so many more urgent needs for Houston's development at the present that no specific proposals can be made at this time. It is to be noted, however, that the great fire in February of last year afforded a chance to secure a square in a rather cheerless section of the Fifth Ward. In the Second Ward Settegast Park is a good type of such squares, and furnishes an illustration of the opportunity open for a public-spirited citizen to confer a lasting benefit upon a neighborhood through such a gift.

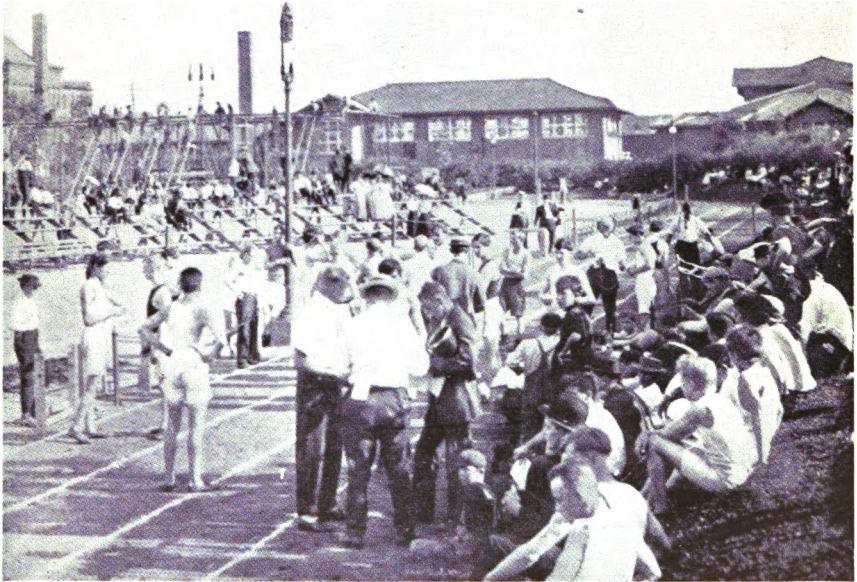
D. LOCAL PARKS, being larger than city squares, may be made to serve considerable sections of the city otherwise unprovided with parks. Sometimes the grounds can be in part developed for organized play where distant from the more complete recreation centres, but for the most part trees and shrubbery bordering lawns will be apt to be the type of development, owing largely to local sentiment. Elizabeth Baldwin Park is a typical example of a local city park.

Like the city squares, the need of a local park at any one point is not vital, but a city entirely without this class of open spaces appears lacking. Farther out several such parks should be located between the outer system and inner centres. A tentative distribution suggests parks near Market Road, north-east of the city, near Mary Street to the north, near Richmond Road to the south-west, and near Scott Street to the south; but here again fluctuating land values will be an important consideration in determining the precise locations.

E. The INNER PARK SYSTEM will include both the larger parks and the bayou parkways, within a radius of about two to three miles from the centre of the city. The bayous, or creeks, will naturally form the backbone of this system, and should all be parked except where utilized for commerce. The earliest acquirements should be where private development threatens—as close into the heart of the city—or where land is offered unusually cheap. Specifically, it is suggested that with part of the funds of the present bond issue land be acquired along Buffalo Bayou east from Sam Houston Park—for this opportunity of extending the system virtually



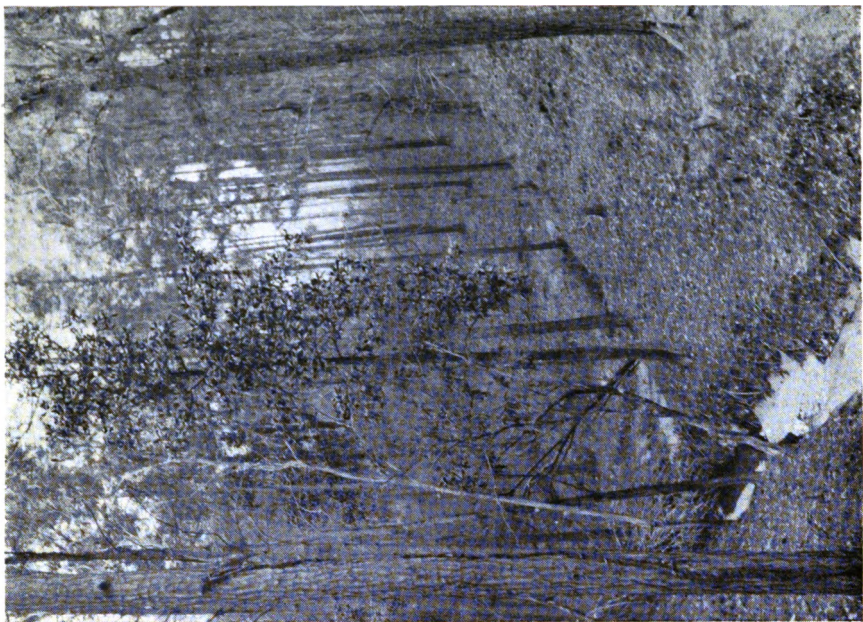
"SAM'S PLACE," IN THE OLD FIFTH WARD
A Good Site for a Recreation Centre



ATHLETICS AT OGDEN PARK, CHICAGO
A Model Social and Recreation Centre



• **FOREST EAST OF RICE INSTITUTE**
Within the Proposed Pines Park



A RAVINE WEST OF WOODLAND HEIGHTS
A Magnificent Pine Woods within the City Limits

into the heart of the city is not apt to continue long—and along White Oak Bayou west of Houston Avenue, where land values have not yet risen to speculative figures.

Such acquirements should not, however, as a rule be made in advance of surveys, since the taking of insufficient areas will enhance the value of the remaining strips of territory later found necessary to round out the park, making the city pay a second time for the added value it has itself created.

The usual treatment proposed for these long strips of park, forming connecting links between different sections of the city, is indicated on the diagram of cross-sections of parkways (page 47). There will be laid out a roadway on each side, with a narrow planting strip and walk adjacent to the private frontage; and, in the central reservation thus formed, one or more walks wandering somewhat in their course through the valley or on the crest of the slope. The early development will comprise little else, except to smooth over scarred slopes and plant trees where they have been denuded. At certain points on the larger streams it may be found feasible to construct dams and thereby form long narrow lakes for boating, but there are many aspects, such as water supply and existing water-level grades, that will require exhaustive study before this can be attempted.

Later, as the use of successive sections of these parks increases, a more intensive development will take place, with ramifying paths, seats, play lawns, occasional bridges, and possibly at certain points an interior third driveway. But it is not believed that in general the city is justified in providing such third roads in the parkways for the use of a comparatively restricted class, which is already well served by the border drives on either side of the central park space. Justification for this treatment will be found, however, where heavy traffic passes along the outer roadways.

The schedule of bayou parkways and large parks to be included in the Inner Park System follows. Their location is shown on the general plan at the front of this report.

1. Buffalo Bayou, west; 2. White Oak Bayou; 3. Hollywood Bayou; 4. East Branch; 5. Evergreen Bayou; 6. Buffalo Bayou, east; 7. Tenth Street Connection; 8. Pines Park.

1. Buffalo Bayou, from Preston Avenue west to Cleveland Park. In the lower reaches this bayou will require a considerable amount of reconstruction, as back yards and other haphazard abuses have partially destroyed its natural beauty. Even in this section, how-

ever, many fine trees remain, and the general grade has been little disturbed. The water-works property just below Sam Houston Park is an illustration of the lack of co-operation in city administration, as with comparatively little treatment this ground will form a beautiful extension to the popular park. The present area of the park itself will need to be replanned along the bayou, but with the additional area down stream its total value will be greatly enhanced.

Farther out the landscape is much less disturbed, and will require little or no development at present beyond the roadways on either side and clearing the way for a rough path or two. Through the cemeteries a right of way only for the roadway and walk will be necessary; and this should the more readily be given when it is realized what a tremendous improvement this new approach will be over that by way of dusty, congested Washington Street. Cleveland Park has the largest area of any of Houston's present parks, and will continue to be an important unit in the park system. For some time it will presumably terminate the parkway in this direction, or at least the constructed portion.

2. White Oak Bayou, from Montgomery Avenue west to the city limits. This parkway also will penetrate far into the city, and by its connection with the Main Street Viaduct now under construction will open up a new and attractive route to the north-western suburbs, which are at present to be reached by crowded thoroughfares only. Opposite Third Street a wide bend encloses a level field that actually lies within four blocks of the city's skyscrapers, and may therefore be turned into a popular playfield for use during noon hours and after closing time. Though so close to the heart of the city, this bayou is almost untouched throughout its length.

West of Houston Avenue, White Oak Bayou flows through very beautiful scenery with numerous bends; and the banks often recede so as to leave attractive grassy glades on the lower levels. These are, to be sure, occasionally covered by unusually high waters, but no great damage will result from such infrequent floods if the main roadways are kept on the higher levels. The tree growth is very fine throughout this valley, so that it will be worth while to include an extra wide central reservation in the taking for the parkway.

Near the city limits a picturesque ravine branches off to the north through heavy pine woods. This should be included in the park tak-

ing in its entirety. Part way up the ravine the main roadway will cross to the west to connect with Sixth Avenue in Houston Heights, thereby linking up that attractive suburb with the park system, and providing a beautiful approach to it from the heart of Houston.

3. Hollywood Bayou, from White Oak Bayou north to the city line. This stream, sometimes known as the Little White Oak, joins White Oak Bayou not far below Highland Park. Property here has already been acquired by the city on one side, under the name of San Jacinto Park, which with Highland Park makes a beginning towards complete acquirement for this parkway. North of the park it will skirt extensive cemeteries, where again a narrow right of way will suffice. The improved approach should more than compensate the authorities for granting the permission.

4. East Branch, from Buffalo Bayou north to Odin Street. Though lying in part beyond the present built up section of the city, this smaller stream, still unspoiled throughout most of its course, will form a few years hence a most essential link in the park system. The north-eastern section of the city has been devoid to a greater degree than elsewhere of attractive outlooks and the chance to get away from the huddled rows of cottages and dusty streets. But with White Oak and Hollywood Parkways on the west and this valley on the east the attractiveness of the entire region will be greatly increased. The East Branch flows throughout its length through a district certain to become one of workingmen's homes in a decade or two, and this strip of green and trees will furnish recreation and relaxation to many thousands.

5. Evergreen Bayou, from Calhoun Avenue north and east to the Country Club. This stream, now generally known as "Slaughter Pen Bayou," will also afford a relief from the solidly built up city now stretching out towards it. The strip of woods bordering its banks is the only natural landscape feature of interest in this prairie district, thereby all the more meriting preservation. North of the Telephone Road a small stream flows in wet weather from the west through the new suburb of Eastwood, where it is already preserved in a parkway which will connect with the cross-town boulevard from the heart of the city. Continuing along Evergreen Bayou, this parkway will eventually form an attractive approach to the eastern suburbs, Magnolia Park, Forest Hill, and Harrisburg, in place of the dusty, narrow Harrisburg Road. Its ultimate extension in this direction is considered as a part of the Outer Park System,

though it should be undertaken in advance of many of those later projects, as the town is growing rapidly in this direction.

6. Buffalo Bayou to the east. Along the navigable commercial waterway a continuous parkway is of course not to be considered, but two parks at least should be established within the city, to serve more or less as local parks for the industrial population in that section. Tentative locations suggest one park on the south bank east of Hill Street bridge and a larger park east of Milby Street at the city line. Near the latter point several picturesque groups of pine with magnolias and other trees should, if possible, be included within the taking lines.

7. Tenth Street Connection. The value of both the Buffalo and White Oak Parkways will be greatly enhanced if a connection between their inner ends can be made in order to facilitate going from one to the other. Owing to the enhancement in value throughout these parkways, the importance of such a connecting link will be out of all proportion to its immediate cost and local benefit. The opening up of a broad parkway on the line of Tenth Street the three or four blocks from the water-works property to the north side of the H. & T. C. tracks will be found not only feasible, but imperative in the ultimate development of the park system. Its cost at present is relatively small. The railroad crossing, to be at grade for the present, is at an advantageous point, for the station tracks are here narrowed down to four; and the gully to the north will assist materially in securing an easy grade into the White Oak valley. The northern as well as the western parkways will in this way be brought to a common focus close to the heart of the city; and the proposed Texas Avenue bridge at the end of Houston's only one-hundred-foot street will fittingly mark this principal entrance to the park system. The details of this problem are, however, so closely bound up with traffic needs that they will best be taken up under that head.

8. Pines Park. In addition to the parkways at least one large park should be secured as a part of the inner system. Opportunity to acquire such a continuous tract of several hundred acres is not apt to remain open many months with the present rapid real estate development, so that early action is urged, possibly by securing options. The most desirable location for such a park at present appears to be south of the city and east of Main Street, where there is a fine stand of pine woods extending to Bray's Bayou. The open land on the south-western side of this woods may be omitted from

the taking if it proves expensive, though it would later be of use for athletic fields, etc.

F. BOULEVARDS should be created where there is a large amount of pleasure driving over city streets insufficient in width to carry both this and the usual teaming, and where the heavy traffic can be diverted to parallel paved streets, so that it need not be forced far out of its way. The advantage of segregating traffic in this way will be mutual, as the pleasure of driving will be greatly enhanced and the steady movement of heavy teaming will be uninterrupted. In the centre of the city, where broad parkways are at present out of the question, these boulevards with their well-kept trees and parking spaces will be the only feasible park approaches.

As soon as pavements are laid on parallel streets, it is suggested that the following streets be restricted by ordinance, as boulevards for pleasure driving only. Local teaming should, of course, still be permitted within the same block as its destination. Main Street, south from about Lamar Avenue to Bellaire Road, and a cross-town route from Sam Houston Park, probably Lamar Avenue, east to a connection with the parkway in Eastwood, will be the most important of these boulevards.

There is also another type, the "residence boulevards," which are more or less continuous roads through expensive residence property,—streets made wide and restricted to pleasure driving primarily in order to increase property values. They may, however, at the same time have a distinct value in the park system. Such boulevards are those in Montrose. Lovett Place and its easterly extension, Courtland Place, if connected to the Main Street Boulevard by restricting Stuart Avenue, will form a continuous route out to the Westheimer Road. Montrose Boulevard also has a general value, as it may be linked up to the north with a parked highway and extended south directly into the Pines Park. Other boulevards will doubtless be laid out in the future, which, if controlled by a central authority, can be made continuous and of great value as connecting routes for pleasure driving. The resulting enhancement in land values and tax returns should also be borne in mind in such proposals.

G. The OUTER PARK SYSTEM will serve primarily the needs of the future metropolis, but certain sections, notably to the

south-east, will come into active use almost at once. Preliminary studies have been carried out throughout the Metropolitan District, eight by eleven miles in extent, and tentative locations noted for the more important units, but, where landscape features such as bayous and forests do not dictate, the precise locations will depend largely upon the cost of the required lands, and cannot be determined in advance of their purchase. On the general plan at the front of this report these partially determined locations are indicated by dotted lines.

The outer system will include the parking of all bayous not required for commercial purposes for a distance of four to six miles from the city, a connecting belt which, with Bray's Bayou on the south, will form a complete girdle about the city, and several large parks along the commercial section of Buffalo Bayou. Though the acquisition of most of these outer parks is urged at a fairly early date in order to assure a reasonably complete and well-balanced system, their development may safely be left until an active demand arises for their use. Along the parkways a single border road may be graded until traffic becomes heavy and the building up of the section traversed requires that both frontages be made accessible. Care of the forest growth and a small amount of planting each year will gradually enhance the value of the park areas for their future intensive use.

The schedule of the parks and parkways of the Outer Park System follows: 1. Buffalo Bayou, west; 2. White Oak Bayou; 3. Hollywood Bayou; 4. Bray's Bayou; 5. Evergreen Bayou; 6. Buffalo Bayou, east; 7. Connecting Parkway.

1. Buffalo Bayou, west of Cleveland Park, flows through beautiful scenery, much of which is heavily forested. A broad taking should be made, where values permit; and, if sufficiently early action is taken, a large forest reservation can be acquired on either side of the stream.

2. White Oak Bayou, west of the city limits, flows through the thriving suburb of Houston Heights. Unfortunately, private encroachments have destroyed much of the pristine beauty of the valley, but with its acquisition as a park the landscape could soon be changed from an eyesore to the most attractive feature of the town. The resulting effect on land values and the impetus to building homes on the new frontage would more than repay the corporation to develop the section east of the "Boulevard" at the present

time. To the west several sharp bends should be included in the taking, thus providing playing fields for the working-people of this growing section. Beyond the corporate limits the bayou flows through undeveloped country, much of which is wooded and might be secured as a forest reservation.

3. Hollywood Bayou, north of the city line, flows through attractive scenery, as yet untouched by the suburbs springing up in that direction. This taking may be quite narrow, but should be widened where good tree growth may be preserved.

4. Bray's Bayou is perhaps the most important unit of the outer system, lying as it does along the entire southern edge of the greater city. This very fortunate position permits it to be utilized in the proposed parkway girdle. It will constitute about one-third of the entire circuit of twenty-four miles. Near Main Street the north fork flows through the outer portion of the Rice Institute grounds, thereby linking up that important feature in Houston's civic development with the park system proper. Thence the bayou flows along the edge of the proposed Pines Park and east through as beautiful landscape as can be found about Houston. The bed of the stream lies at first close to the level of the surrounding country, and is insufficient in width to carry away the run-off after heavy rains. Co-operation with the county should be sought in dredging the channel to a point where the deepening valley will take care of the flood waters.

Along the property of the Country Club a very narrow taking only need be secured. Where the bayou bends sharply to the east, the connecting parkway will cross the parkway along Evergreen Bayou from the city, the latter continuing down Bray's Bayou to Harrisburg and a connection with the Galveston highway. This section of the bayou is already excellently adapted to canoeing, which should be encouraged by cutting away shallows and snags. Near the Country Club a magnificent stand of pine forest should be acquired unless land values prove to be prohibitive.

5. Evergreen Bayou, as already noted, will afford an attractive entrance to the city from the south-east, as it is fairly well wooded along most of its course. To avoid damaging the Country Club property, it should be carried to the north close to the railroad as a single drive at this point.

6. Buffalo Bayou, east of the city line. Three large parks are suggested for acquisition along the commercial waterway, to pre-

serve some of the most beautiful landscape views and afford rest and relaxation to the citizens of neighboring districts. The broad water areas in this portion of the river produce a delightful type of scenery not found elsewhere in the district. Where the bayou makes a U-shaped bend a half-mile east of the city line, a new channel might be dug for the more direct passage of shipping and the bend itself preserved with its beautiful pines and valley slopes. Not far above the Turning Basin is another sharp bend, which may also be eliminated by a channel cut from the slips already dredged, and the bend with its beautiful border of pine forest taken for park purposes. At this point the Connecting Parkway would probably cross. Near Harrisburg a third park should be secured. Possibly Brady's Island, or part of it, will become available for such use in the future.

7. Connecting Parkway. The route by which the outer girdle shall be carried around the east, north, and west sides of the city is at present indeterminate. A feasible location is, however, indicated on the general plan in a tentative way. This runs from Bray's Bayou near the Country Club north and north-west, keeping outside the present built up sections entirely. After crossing Hollywood Bayou, it seeks a route through Houston Heights along Sixteenth Street, then passes through undeveloped country once more, south-west and south to the Rice Institute.

The parkway will of course tap each radial route and connect all the bayou parkways. Through much of its course it will also be an important traffic route. The type of ultimate development proposed is shown on the diagram of cross-sections of parkways (page 47), but at intervals, especially where woods are traversed, more extensive takings for forest reservations may advantageously be made. There should be little difficulty in securing an adequate strip of land for this belt parkway, except where it crosses the main radial highways. Along these, however, building is apt to creep out and block the scheme at critical points, so that some action should be taken to assure that these crossings be secured.

H. FOREST RESERVATIONS along several of the bayous have been alluded to as a possible element of the outer system. The larger cities of the United States are beginning to realize the importance of reserving extensive areas, to be maintained in a wild state, to which the people can go for excursions and get away entirely for hours at a time from the city and all artificial surroundings. With

the present small amount of agricultural land, estimated at eleven per cent. in Harris County, such reservations might be obtained very cheaply. It should be possible to make them self-supporting in large measure through the cutting of marketable timber, as is done very extensively in Europe, without materially diminishing their value for recreation.

Besides those roughly suggested on the general plan, one or more larger reservations will eventually be desired at a greater distance from the city. The acquisition of any of these forest reserves is hardly to be urged, however, until other more immediate needs in the program of civic development are under way.

I. OTHER OPEN SPACES, besides the park system proper, are apt to be established from time to time, and should be carefully studied in connection with the parks. Under this head would come the suggested South Texas Fair Ground. A large tract of this sort, used for its primary purpose but a few weeks in the year, could very advantageously be utilized for recreation purposes during the balance, thereby effecting a true economy, which would repay both participants in the arrangement.

Various other public or semi-public open spaces must be studied in their relation to the recreation system. Portions of the numerous cemeteries, with their picturesque roads and planting, supply in part the restfulness of naturalistic scenery. The Country Club is a fairly permanent open space, with beautiful park-like landscape, and as such is a distinct asset to the city. Rice Institute will have many attractive features in its extensive grounds, which will doubtless be open to the public. Such park-like areas are apt to become more numerous and extensive as time goes on.

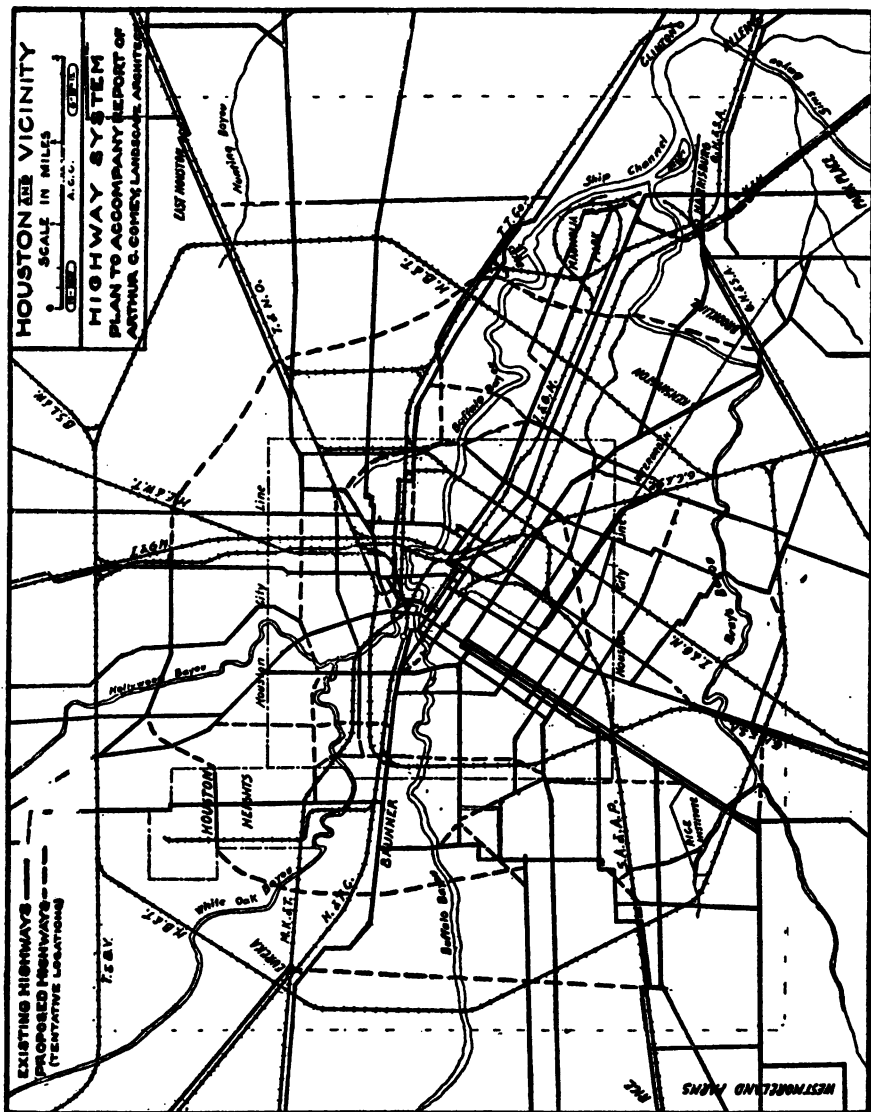
As an example of another type of excursion park, San Jacinto Battleground deserves mention. Situated some fifteen to twenty miles below Houston, near the mouth of Buffalo Bayou, it is a pleasant spot where boating parties may land, and has of course great historic interest as the site of the Texan victory over Mexico. It is to be hoped that the plan of treatment of the grounds, which are in charge of the State Commissioners, will be effective and beautiful and will at the same time preserve the broad, simple landscape of the early days.

2. STREET SYSTEM

The highways of a city serve primarily as means of communication between different points and should be planned to fulfil that purpose. It will be found desirable at the outset to concentrate traffic upon certain main routes, where it may be adequately provided for, thereby permitting a less expensive treatment on the remaining streets. This leads to a classification of all highways, differentiating sharply among them according to their use and passing by successive grades from the most vital units of the street plan to the purely secondary by-ways. The requirements and possibilities of each group may then be studied in their effect upon the street system as a whole, as well as upon their immediate surroundings.

Such a classification can, however, be applied but very imperfectly to the existing streets of Houston, laid out as they are far into the country, mainly upon a rectangular plan and with little idea of the needs of through traffic. It is, nevertheless, important that direct routes be worked out where possible, widening and extending such streets as now just fail to meet the traffic needs. A network of main thoroughfares approximating conditions that at present seem attainable in Houston is shown on the accompanying skeleton plan and more in detail on the general plan at the front of this report. A more exhaustive study than has thus far been made would doubtless prove the justifying value of additional diagonal highways in several sections.

Widths of streets laid out in the future and of existing streets as widened should be differentiated according to the same classification of use, concentrating the width on the arteries and lessening it on minor streets, for too wide streets are as extravagant as too narrow streets are inefficient. The subdivision of the width into walks, parking, and roadways will determine the width needed, due regard in each case being had for future as well as present requirements. Pavement should be apportioned according to the density of travel, each line of vehicles occupying about eight and one-half feet, and street cars ten feet, allowance in each case for clearance being included. Planting spaces will be provided on most streets, and should be from six to twelve feet wide, according to the type of trees used. Sidewalks will vary in width with the amount of pedestrian travel, which, it is to be noted, bears little direct relation to the pavement width required.



The accompanying diagrams indicate the most serviceable widths for new streets and parkways as well as the best practicable subdivision for those already fixed. Parkway and boulevards are the means of communication of the city's park system, under which head they have already been considered. The widths for the main types of traffic ways are as follows:—

1. Parked Highways, radial, 120–150 feet; 2. Parked Highways, encircling, 120 feet; 3. Thoroughfares, 80–100 feet; 4. Secondary Business Streets, 60–80 feet; 5. Residence Streets, 50–80 feet.

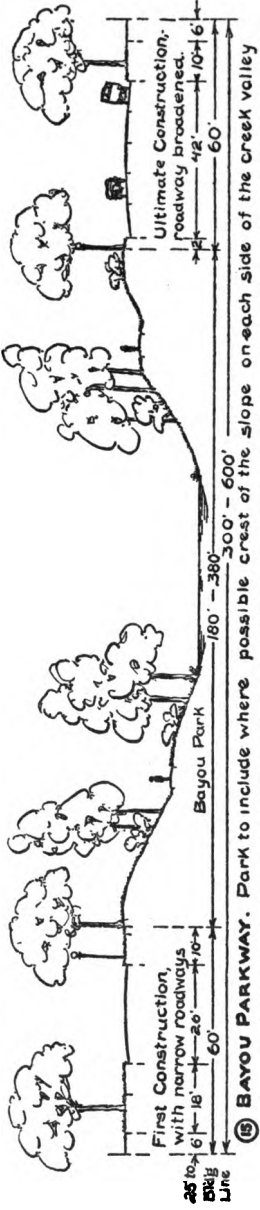
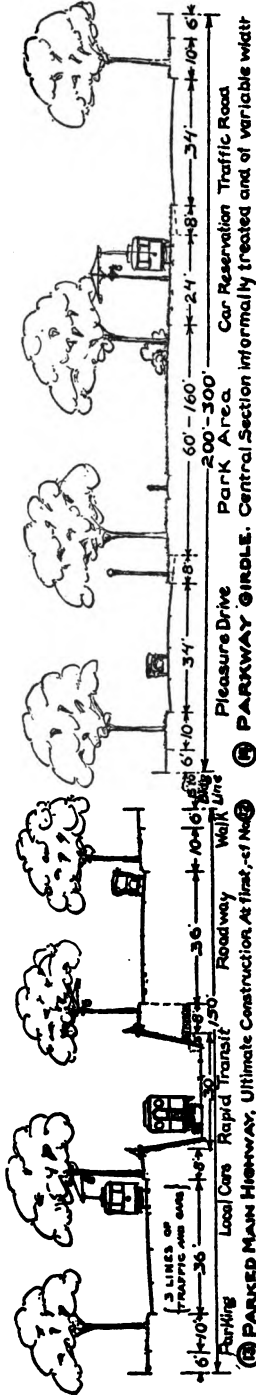
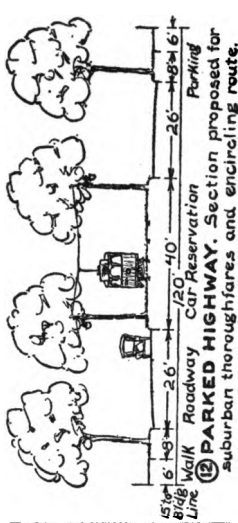
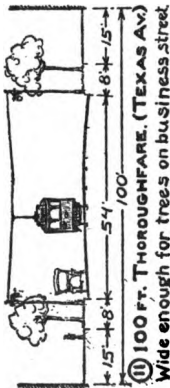
1. Parked Highways, radial routes. These main arterial ways, linking up both parkways and the street system, should be broad avenues of traffic, with provision for future rapid transit lines and two or more roadways. All the main travelled routes from the city should be widened outside the built up area and sufficient parking space allowed for several lines of trees. Within the built up area a gradual widening may be accomplished on certain streets by establishing building lines to which new construction must conform. These highways should be extended beyond the Metropolitan District to form a county system of roads.

2. Parked Highway, encircling route. In order that traffic bound around the city may not have to pass through its centre, thereby congesting that inevitably crowded section, a broad highway should be cut through within the present city limits, to form a continuous circuit. This avenue should be planted with several rows of trees and include a strip reserved for a belt car line. Like the parked radial highways, it will contribute in large measure to the efficacy of the system of pleasure drives and will virtually extend them throughout the district. It will be found that such a highway will not only afford short cuts for traffic, but it will greatly improve the communication between adjoining sections through which it passes. But, unless it is cut through very soon, it will become exceedingly difficult to do so a few years hence, when the need is more keenly felt.

The route which appears most practicable for this inner circuit highway is shown on the accompanying plans. East from Main Street it first follows Elgin Avenue, then cuts diagonally by a new route mainly through land not yet built upon to Milby Street, which it follows to a new bridge across the bayou. Thence it borders the proposed park up the East Branch to Gregg Street. Leaving Gregg Street, a new route directly west is cut through the jumble of plats in this section to Boundary Street, which is to be extended through

CITY OF HOUSTON
PROPOSED CROSS-SECTIONS
FOR HIGHWAYS AND PARKWAYS
 DIAGRAM TO ACCOMPANY REPORT OF
 ARTHUR C. CONEY, LANDSCAPE ARCHITECT.

SCALE: 20 FT. = 1 IN.
 1921.



Highland Park to Beauchamp Street. Thence heavy traffic is to take a new thoroughfare, and pleasure travel will go by the White Oak Parkway, until both reunite to cross the bayou and run south by a new route just east of the G. H. & S. A. Railway, which is crossed near Hyde Park. The highway will then come into the north end of Montrose Boulevard, heavy traffic returning to the city via Hathaway Street and Elgin Avenue and pleasure driving via Lovett Boulevard.

3. Thoroughfares should be gradually widened where insufficient for traffic needs and to form additional through routes. They fall naturally into two classes, radial, which penetrate very close to the heart of the city, and tangential, which cut across the radial routes. In so-called "ideal plans," these cross-town routes have often been considered as circumferential, but they are more apt to be efficient if they follow a diagonal course between main radials.

In the centre of the city the conditions along Buffalo Bayou demand especial attention. This deep cut in the plain acts as an obstruction to the extension of the gridiron plan and restricts traffic to bridges at certain points. The new Main Street viaduct and the proposed San Jacinto Street bridge will provide satisfactory communication with the north-east part of the city, but to relieve the difficulty in getting to the Grand Central Station and north-western suburbs more radical changes are necessary. In the accompanying plan of the district and two special detailed plans (the latter are not reproduced) two vital improvements are shown, which will in large measure relieve the present bad conditions.

Of immediate necessity is the rebuilding of Franklin Avenue bridge. It should be the full eighty feet in width, and be located so that the present awkward corner will be eliminated and a single wide angle formed with Washington Street. Louisiana Street will then be most economically extended along its original line to meet Franklin Avenue on the bridge.

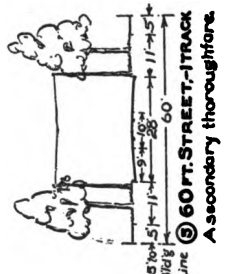
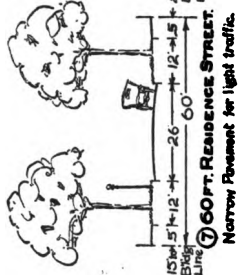
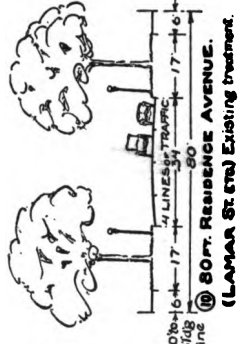
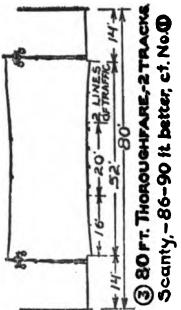
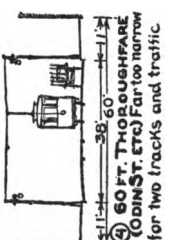
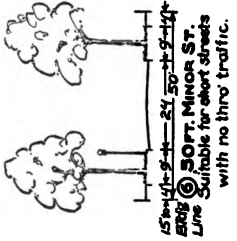
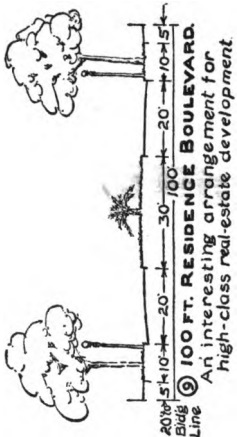
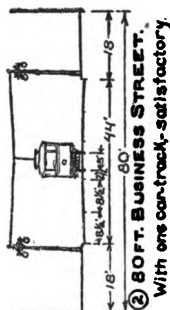
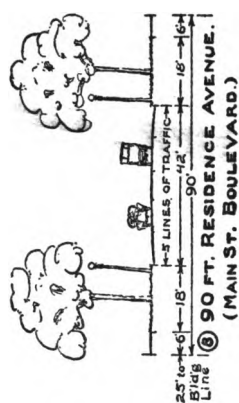
The second great improvement is the extension of Eighth Street to a bridge at the end of Texas Avenue. This will furnish a direct and beautiful approach by Houston's broadest thoroughfare and the beginning of the park system to the Grand Central Station. A new thoroughfare should then be made along the bayou park to the proposed Tenth Street Connection, and, if possible, continued to the intersection of Washington Street and Houston Avenue. Such a highway would open up several blocks of cheap territory, and is the

CITY OF HOUSTON

CROSS-SECTIONS OF STREETS DIAGRAM TO ACCOMPANY REPORT OF ARTHUR C. COMEY, LANDSCAPE ARCHITECT

SCALE: 80 FT. = 1 IN.

1918. C.E.D.



most practical plan for relieving the congestion on Washington Street and Preston Avenue. Furthermore, it increases the accessibility of the parkways from the heart of the city both to the west and to the north via Tenth Street. The Texas Avenue bridge would then become the focal point of entrance to the entire park system.

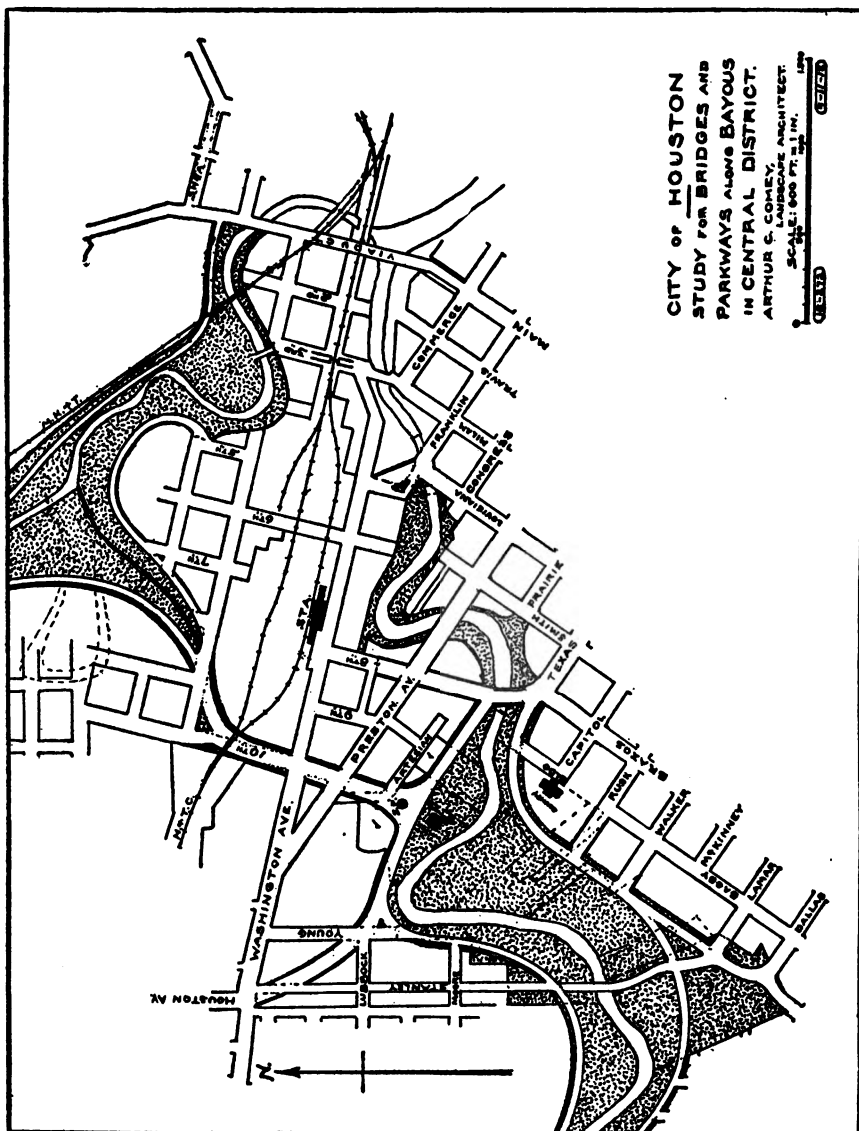
3. STREET TREATMENT

No one feature affects more the attractive and orderly appearance of a city than the condition of its streets and their accessories. The proper treatment of these elements in the city plan will be considered under the following heads: 1. Bridges; 2. Pavements; 3. Lighting; 4. Trees; 5. Signs; 6. Wires; 7. Subsurface Utilities.

1. Bridges in their effect upon traffic by reason of their location in the network of thoroughfares have already been discussed under streets. Beyond their mere practical value, however, they offer unusual opportunities for artistic treatment, and, it may be added, for ugliness as well. But, with the general adoption of concrete for their construction, beauty of design often follows in the simplest of structures. The deep bayous flowing through Houston suggest the use of high, long-span arches, which with proper handling will be among its most beautiful monumental structures.

2. Pavements should be selected in reference to the traffic the street is likely to bear. There should be a sharp distinction among the different types, of which wood-block, asphalt, bitulithic, brick, and stone-block may be considered the standards for the heavier traffic roads and the centre of the city, while farther out cheaper pavements should be used on the local streets to keep down the cost of improvements. Concrete surfaced with asphalt, oiled macadam, and shell roads each have their special uses in the improvement of the city's street surfacing.

3. Lighting should be artistically handled for both day and night effects. The standards recently installed in the business district are a great improvement for the restricted section in which they are used. Along residential avenues and parkways the so-called "Boulevard System" with clustered tungsten lamps in a large globe on a concrete column will give dignity to the street by their regular spacing and more uniform illumination than that given by the more powerful arc lights at present strung aloft at certain intersections only.

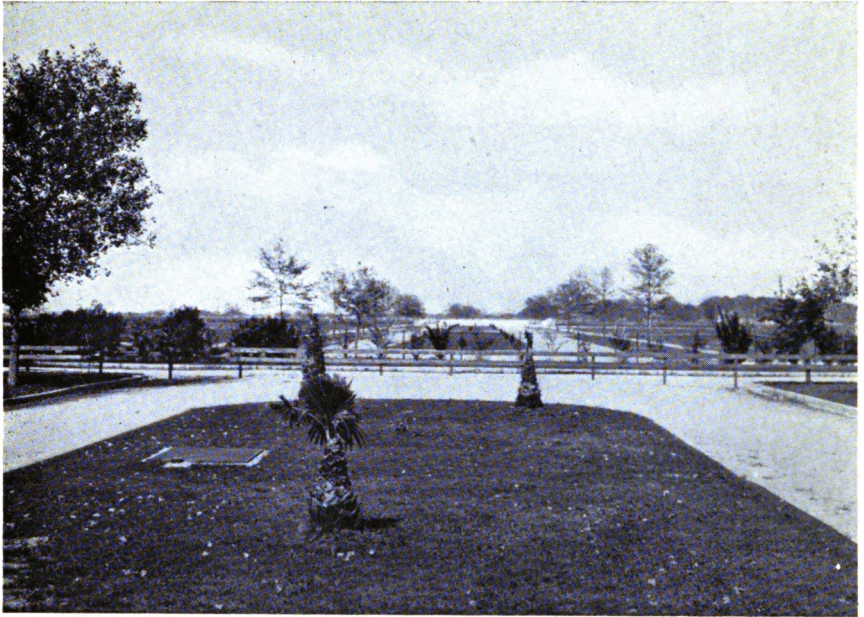


4. Trees are apt to constitute the chief claim for beauty in a residence street and a primary consideration in the value of property, especially where shade is essential, as in Houston's warm, sunny climate. Their commercial as well as æsthetic value has often been placed at high amounts by the courts. Yet up to the present time the slight but regular and scientific annual care needed to sustain this value has been practically ignored in Houston, with the inevitable result that many of its beautiful tree-lined avenues are being seriously marred by the inroads of disease, and all the trees are more or less infested with insect pests. To save the trees now growing, action should be taken at once, in advance of the general plans, and a capable tree-warden engaged for the work, under the direction of the Superintendent of Parks.

Of even more importance in the future than the care of the existing trees will be the planting of new ones, both to fill gaps along the streets already planted and on new streets, where the trees may be put in at the same time as the paving and sidewalks. They should be placed at a uniform distance from the curb and from tree to tree, and a single species should normally be used on each street. Here again certain types of trees will be found adapted to each special condition that occurs,—certain species for wide avenues, several others for local streets, and a third group for parkway planting.

The method of paying for the care of the trees may be by general appropriation or, preferably, by local assessment, as it is believed that the property holders would be glad to contribute the small amount necessary to assure adequate attention to the trees in front of their own property, with the added assurance of the entire block being cared for as well.

5. Signs for advertising purposes on business streets actually damage property instead of enhancing its value when they become so numerous as to interfere with one another. By concerted action they may be removed, permitting only signs up to about two feet in width, either on the face of the building or running vertically close to it. Advertising signs elsewhere than on the places of business which they advertise, and bill-boards, which may be tolerated as a necessary by-product of a commercial age, should be regulated to prevent gross disfigurement of the vicinity and should be heavily taxed, so that at least the standard may be kept high and tumble-down hoardings eliminated. The revenue thus derived might appropriately be used elsewhere in beautifying the city.



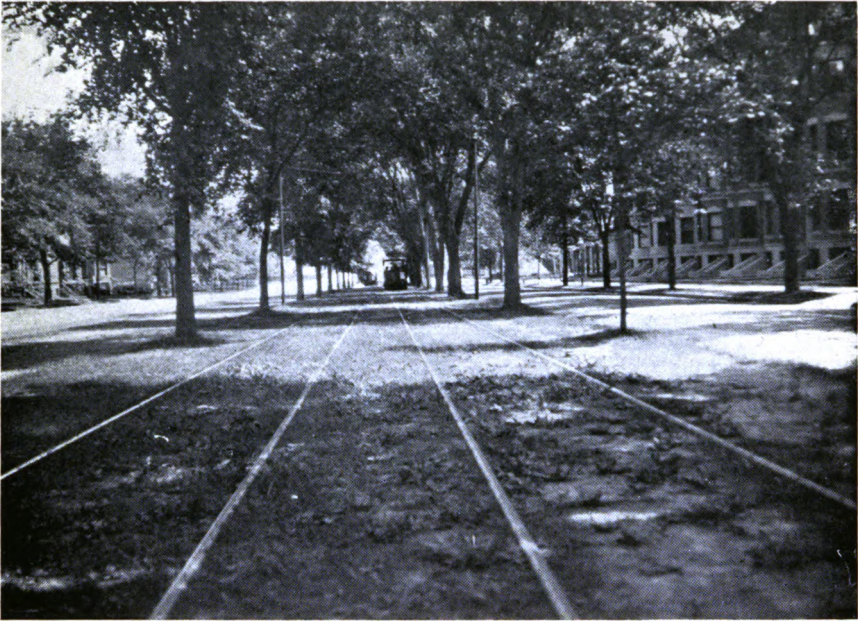
COURTLAND BOULEVARD,—A “SPITE FENCE”

This would have been Unnecessary under Wise City-planning, restricting Both Sections to Pleasure Driving only



A BOULEVARD IN MINNEAPOLIS

An Effective Single Roadway Treatment, with Trees Well Kept, Suitable for Lamar Avenue, etc.



A PARKED HIGHWAY,—BEACON STREET, BROOKLINE
 An Efficiently Designed Radial Thoroughfare, 175 Feet Wide



IN A GARDEN SUBURB,—HAMPSTEAD, NEAR LONDON
 Houses Restricted in Number and Harmoniously Designed. Minor Roads Narrow and Well Kept

Street signs should be artistic and uniform in design. Where the new light standards have been erected, they should be placed on these at all intersections.

6. Wires are a necessary nuisance in the early development of a city and new districts, but the present system of underground conduits should be extended steadily, as funds permit. In residence areas, pole-lines along easements on rear property lines are feasible, even without alleys.

7. Subsurface utilities, such as pipes, wires, and the like, will continue to multiply in their variety and ramifications. Their relative locations should be standardized for each standard type of street; and, when they become numerous, they should be placed in pipe galleries, thereby avoiding the frequent tearing up of the pavement and blocking of the street. Outside the business section a cheap form of sidewalk gallery may be used, as is done in Europe.

4. ELECTRIC LINES

The street railway service is inseparably bound up with the highway system, and its development must be treated as an organic part of the circulation problem. Reasonable speed demands broad streets with little congestion of traffic and relatively few sharp turns in the routing, while the longer lines will be greatly benefited by separate reservations, upon which they may maintain faster schedules. These requirements have been constantly kept in mind in the plans for the street system.

Houston's present needs appear to be adequately met, but studies should be made to keep the service up to a high standard. In the future development of the system four controlling elements should be kept in mind:—

1. The principle of "one-city-one-fare" is already in operation, except between the interurban and local lines.

2. "Through-routing"—cars running from one side of the city through the centre to the other—should eventually be established to prevent congestion in the business district. Belt lines with diverging routes should be abolished.

3. The central section should ultimately be so rearranged that every car shall pass within one block of the intersection of Preston Avenue and Main Street. This will result if double tracks are laid on Fannin, Main, and Travis Streets and on Prairie, Preston,

and Congress Avenues, thereby giving six alternatives for traversing the heart of the city, and avoiding congestion for many years.

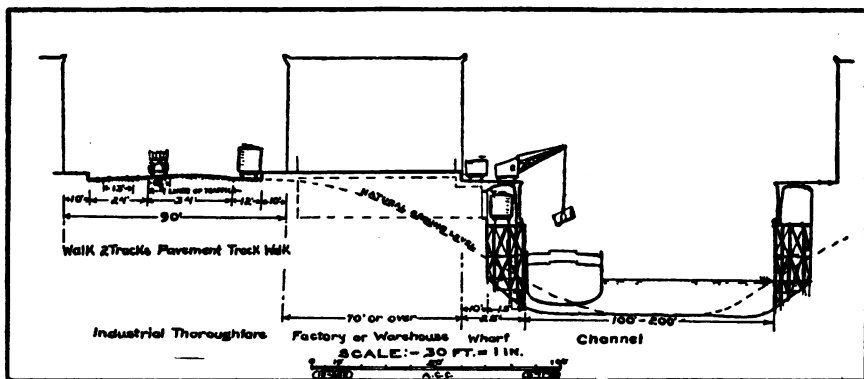
4. Ultimately, the suburbs will require additional routes of the interurban type to serve as rapid transit lines. These should run on private rights of way, and in the city be constructed in open cut or elevated. Space for these is provided in the proposed scheme for Parked Highways already outlined.

5. COMMERCIAL WATERWAYS

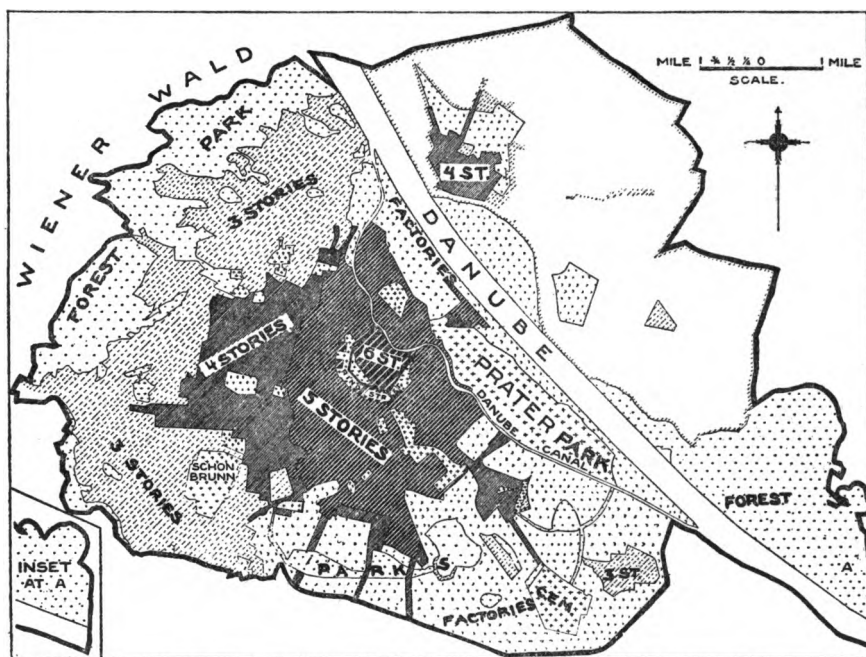
The navigable section of Buffalo Bayou is one of Houston's greatest assets, and should be systematically developed for the needs of commerce, preferably under municipal ownership and an active Dock Board. The banks should be parked where not required for the commercial development, and at all times be kept clean and orderly. The port proper, from the new turning basin down stream, upon completion of the twenty-five-foot channel, should be developed, somewhat in advance of shipping, by building at the outset one or two modern docks, equipped with freight-handling devices and railway connections, since steamers will not come to the port until these facilities are provided. A study of European ports that have recently increased their traffic from little or no tonnage to several millions annually reveals in every case enormous expenditures made in advance to attract shipping to their docks.

Above the main channel smaller steamers will penetrate to about the present city limits, provided some of the narrowest turns in the bayou are eliminated. As these boats will carry cargoes mainly for industries built upon the banks, there should be a quay on each side, permitting craft to lie alongside with room to pass in the middle. Within the city, lighters will be used in the same way and also bring commodities to the public wharves, which should be established at several accessible points.

Back from the quay, a sufficient distance to best serve the industrial development, there should be laid out a broad marginal way or street, with freight switching tracks to serve the factories. The width and location of this thoroughfare will vary according to the type of industries to be served. The accompanying diagram shows a cross-section suitable for small manufacturing along the upper section of the bayou.



HOUSTON—SUGGESTED TREATMENT OF COMMERCIAL WATERWAY
Typical Cross-section of Buffalo Bayou, between Main Street and the Turning Basin



ZONE SYSTEM OF VIENNA
Building is restricted in Each District so that Permanency is assured and Property is protected from Depreciation by Factories or Apartments

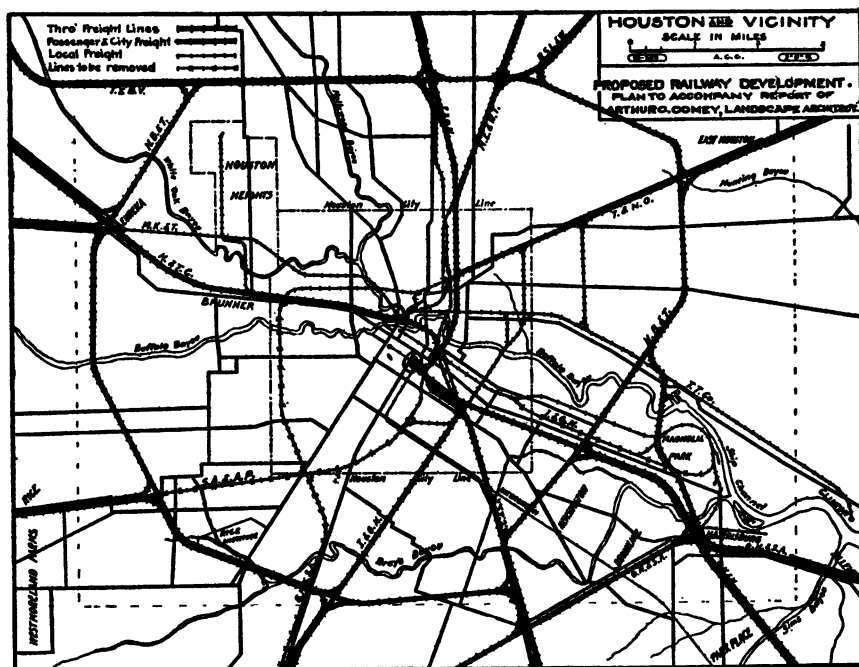
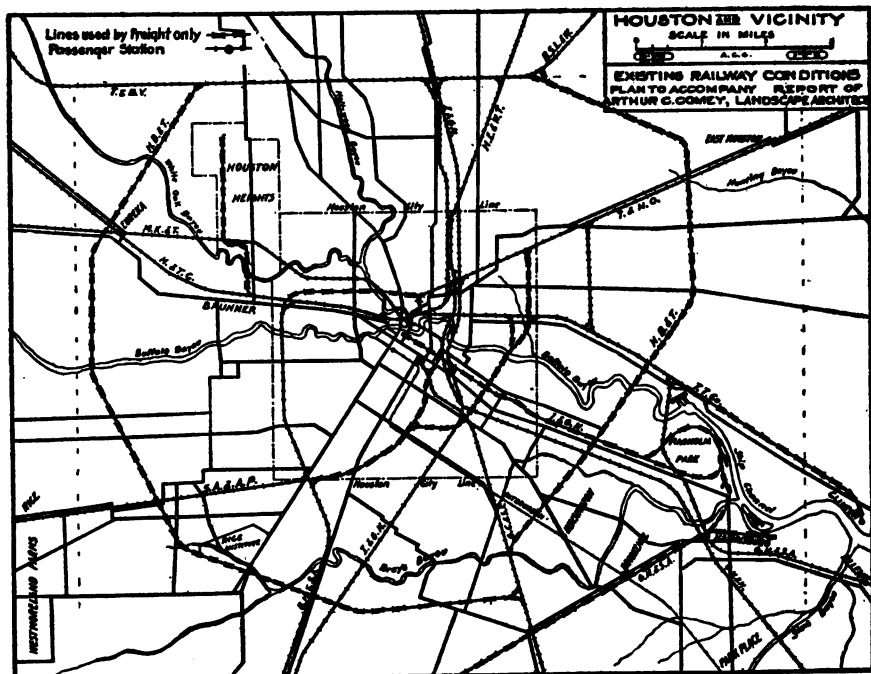
6. RAILROADS

Houston is dependent upon the railroads for much of its prosperity, but it should not permit them to unduly hamper its future growth. At present thirteen separate rights-of-way enter the city, bringing in seventeen railroads, all but two of which are through lines with passenger schedules. There are in addition several long connecting rights-of-way, both within and without the city, and a belt line, which add to the network and bind the city like a vast spider's web, so that it is impossible to go in any direction, except the south-west, without encountering numerous grade crossings.

It is not believed that radical measures should be adopted at any one time, but much can gradually be accomplished by securing the co-operation of the railroads, as improvements are undertaken from time to time. These should be planned with certain underlying principles in mind and an ultimate single co-ordinated transportation system in view. The magnitude and complexity of the problem and the great advantages that will accrue to both the city and the railroads through its solution make it urgent that this phase of Houston's city plan be worked out at an early date. But, before any definite proposals can be adopted, much detailed study in co-operation with the railroad companies will be necessary.

The accompanying block plans show the present conditions and a tentative scheme for ultimate accomplishment. Four main results are to be desired:—

1. Through freight should be routed around the city, utilizing the belt line, instead of across it.
2. Passenger traffic and the principal city freight should be concentrated on certain routes, ultimately not over six, radiating without crossing one another, preferably from a single or twin Union Station for all lines. With this concentration of travel these main routes can be gradually elevated, working from the centre outwards, eventually eliminating all grade crossings.
3. Local freight may continue to use all of the present tracks, under restrictions for the safety of other vehicles and pedestrians, except where no sidings are reached in the residential sections. The G. H. & S. A. and the S. A. & A. P. tracks in the south-west section of the city should be removed. The I. & G. N. branch line to Magnolia Park should be relocated north of German Street beyond



Milby Street, so as to serve the industrial area along the bayou, and may properly be placed in the proposed marginal way.

4. Rights-of-way should be parked, with sodded slopes and hedges on the boundaries and attractive station grounds.

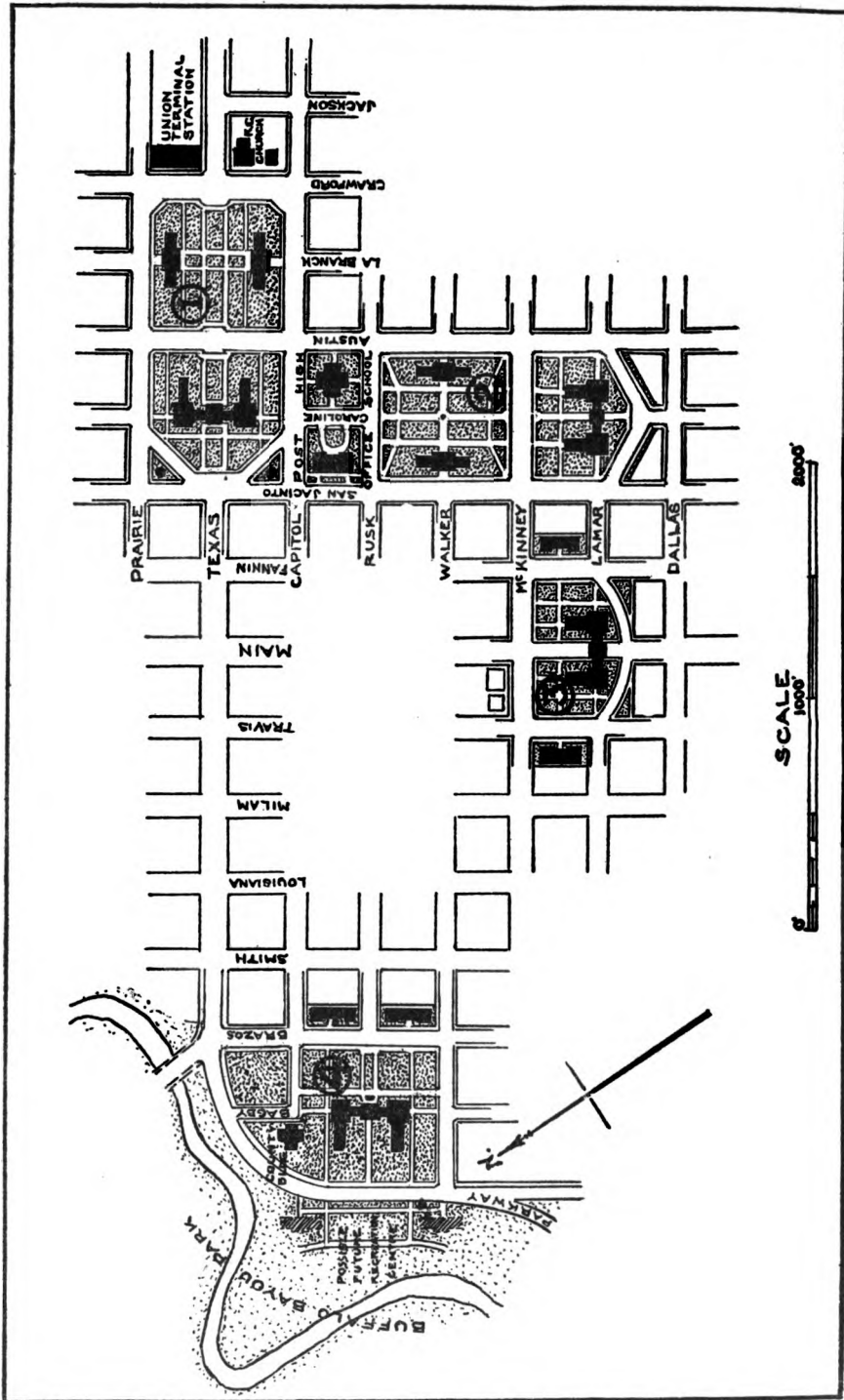
7. CIVIC CENTRES

The public buildings hitherto erected in Houston have been located without the slightest relation to one another, so that nowhere do two or more combine to produce the magnificent effect possible with grouped structures. In the next decade, however, there will be erected many additional buildings of this sort, which, if a plan be adopted now, can be brought into harmony with one another and one or more of those already built. In such a group the architectural value of each building will be greatly enhanced both by its association with others in a single monumental composition and by the adequate space which can be given for its appreciation.

Moreover, such a civic centre can be so designed as to bring about two other desirable results by a single extensive improvement, which may be carried out step by step as opportunity offers. There is great need of an open city square, or promenade, where the thousands may get away from the dust and distraction of Main Street, and of a gateway to the city,—an open plaza at the railroad station and, if possible, a dignified expression of the city to greet the stranger. The plaza will also serve to distribute traffic at this important focal point.

The creation of such a civic centre will stimulate civic pride and will be a great asset to Houston as an indication of the meeting of modern standards, besides the practical value as a park space and setting for public buildings. It is at present well within the city's reach, any one of several sites meeting almost, if not all the requirements. If the acquisition of land is long delayed, however, the most suitable tracts are certain to attain prohibitive values. The accompanying plan shows four alternative locations for a civic centre. Number 1, though the most expensive, is the most ideal in its relation to the general city plan. Up to the present time no expensive buildings have been erected within the eight blocks needed.

Outside the central district minor civic groups should be planned wherever a neighborhood is to be served by more than one public or semi-public building. Fire stations, branch libraries, schools,



HOUSTON—ALTERNATIVE STUDIES FOR A CIVIC CENTRE

churches, and similar edifices, if harmoniously designed, will tend to promote local pride and greatly add to the beauty of each community. Grounds about school buildings are especially susceptible to artistic designing and adequate maintenance.

Certain institutions in the city will themselves be composed of many buildings. Rice Institute, though in a sense private, is an important element in Houston's civic architecture, and is pointing the way by its elaborate group plan and consideration for future additions along broad lines.

8. BUILDING CONTROL

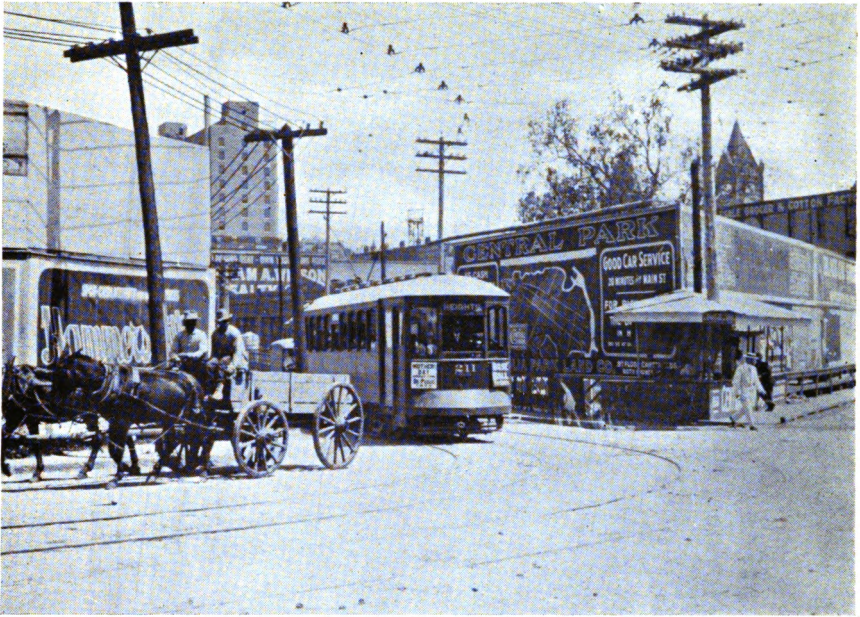
The manner in which private property is developed affects the city's welfare profoundly. There are many points where more or less direct control may be exercised to encourage desirable types of building and prevent construction which may damage adjoining property or endanger lives. The method of taxation also influences the building of certain types of buildings to the exclusion of others, but the claims for various systems are so conflicting it is by no means safe to urge radical changes. Various phases of building control will be taken up under the following heads:—

1. Building Code; 2. Civic Architecture; 3. Building Heights; 4. Encroachments; 5. Building Lines; 6. Zone System.

1. The Building Code is of prime importance, but its revision is of such complex application that exhaustive studies must be made before the results of changes in it can safely be predicted. The only suggestions possible at this time are in limited phases of the subject, being reforms that should be put into effect, whatever the general code adopted.

2. Civic Architecture should be placed on a higher standard of architectural merit. This can be brought about in two ways in particular,—first, in the building's relation to the site, by making plazas and other open spaces and by terminating streets, so that façades may have a vista of greater prominence than that afforded by sites abutting solely on one long street. Secondly, a more artistic treatment should be encouraged in utilitarian buildings, such as warehouses, factories, gas holders, and similar structures, which may be made to form effective compositions. The water-works stand-pipe could very easily be transformed into a tower of great beauty, which would be a prominent feature in the park system.

3. Building Height limitation is an important issue in civic devel-



FRANKLIN AVENUE BRIDGE

A Congested and Unsightly Approach to the City, which should be obviated by cutting across the Lot on the Left

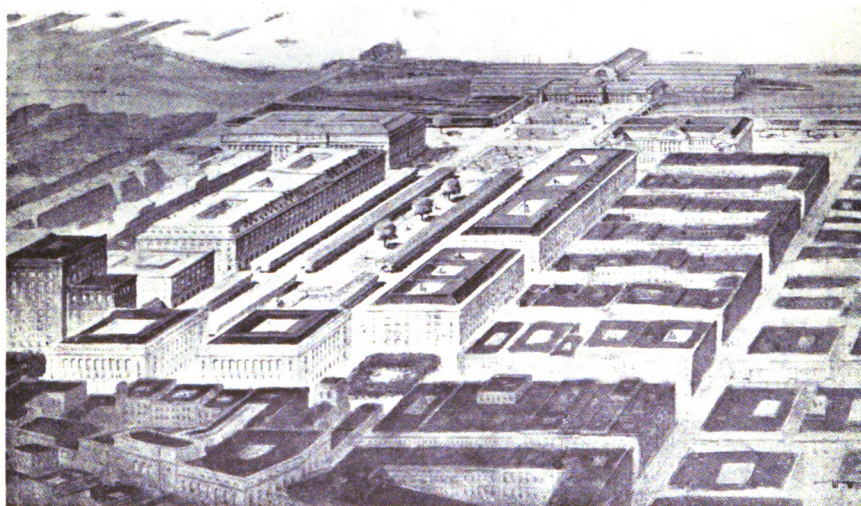


A THOROUGHFARE IN PROCESS OF WIDENING,—VIENNA

This Method of setting back all New Buildings is Suitable for too Narrow Streets in the Built-up District



RUSK AVENUE, WEST OF BRAZOS STREET
 One of the Logical Sites for the Civic Centre



THE CLEVELAND CIVIC CENTRE, NOW UNDER CONSTRUCTION
 Land has been taken and a Splendid Group of Public Buildings is replacing an Unattractive Section

opment, for it affects land values, the character of improvements, and the entire outward appearance of the central districts of the larger cities. Insufficient regulation permits a property holder to usurp his neighbor's "ancient lights," as it is still termed in England, and tends to produce a haphazard saw-tooth sky-line, with very unequal distribution of tall buildings, and usually a distinct loss to the community in land values, taken as a whole. Too severe regulation, on the other hand, temporarily hampers the city's commercial growth, and is apt to cause a general depression in values, though it may have the desirable effect of creating uniform development over a relatively large area, which should be one of the primary aims of all such regulations. The type of buildings most affected by general height limitations will normally be the tallest sky-scrapers,—the strictly fire-proof commercial buildings,—and it is with this class alone that the present discussion is concerned. Many complex factors enter into the matter of height in other types of structures, such as safety, architectural value of spires and towers, commercial need of stacks, etc., which confuse the principles involved.

In determining the maximum desirable height of the fire-proof sky-scraper of to-day from the point of view of the general public, three underlying factors only are of controlling importance,—congestion, light and air, and architectural effect. Congestion in the streets near the building will result if too great a number of people are employed in or served by it; that is, in general, from too great a total volume or cubage of the building. Insufficient light and air in the street and in the building will result from too great height of the front elevation of the building on the street line. Loss of architectural effect will result when the building has such a great height that it cannot be viewed at a proper angle. The limit of profitable height from the standpoint of the individual building-owner, however, at present appears to be well beyond that which would usually be imposed by these three factors; for height evidently effects several economies, such as that gained by dealing in large units, making the utmost use of the land, and saving in time due to the proximity of many offices and the relative ease of vertical travel over horizontal. Some limitation is therefore necessary for the protection of the general public.

In determining a reasonable regulation of height, it will be noticed at the outset that the factors of congestion and light and air and, to a large extent, also the architectural effect vary in nearly a direct

ratio as the width of the street upon which the building faces. The use of the street by through traffic will affect this relation somewhat, especially if the sidewalks must be narrowed. But, in general, if the width of the street is doubled, about twice the number of people can pass to and fro without congesting it; about double the height of buildings will permit the same relative amount of light and air to penetrate its depths; and this increased height will be embraced in the same angle of view from the opposite side of the street as before. Width of street would therefore seem to be an essential element in the regulation of building heights, though it is frequently ignored in regulations now in force. The methods in vogue in American cities vary much in their formulæ and in the type of buildings permitted, and many cities have no building restrictions at all, as may be noted in the following incomplete list of regulations covering strictly fire-proof buildings, which has been compiled from various sources. For comparison five Continental cities have been added, to indicate the universally low limitations of building heights abroad.

Among the larger cities having no regulations affecting the height of fire-proof buildings are Albany, Atlanta, Cincinnati, Dayton, Indianapolis, Louisville, Milwaukee, Minneapolis, Nashville, New York, Philadelphia, Reading, Richmond, Salt Lake City, San Antonio, Spokane, Syracuse, Toledo, and Trenton. Of the cities having regulations, the height is limited in

Baltimore to	175 feet, except towers, spires, etc.
Boston,	Business district, 125 feet; residence district, 80 feet, with certain exceptions up to 100 feet.
Buffalo,	Not exceeding four times the average of building's least horizontal dimensions.
Chicago,	200 feet.
Cleveland,	200 feet and not exceeding $2\frac{1}{2}$ times width of street, except towers, spires, etc.
Denver,	Not exceeding twelve stories.
Jersey City,	Not exceeding $2\frac{1}{2}$ times width of street.
Los Angeles,	150 feet, allowing 30 feet for mansard roof.
Newark,	200 feet.
New Orleans,	Not exceeding $2\frac{1}{2}$ times width of street.
Portland,	160 feet, or twelve stories, except towers, spires, etc.
Providence,	120 feet, plus 20 feet for structures built upon the roof, but no limit if "strictly fire-proof."

Rochester,	Indirect regulation by structural requirements.
St. Louis,	Office buildings facing three streets and occupying one-half block, 250 feet; other buildings, 150 feet and not exceeding $2\frac{1}{2}$ times width of street.
St. Paul,	250 feet and not more than twenty stories.
San Diego,	150 feet.
San Francisco,	102 feet.
Scranton,	125 feet.
Tacoma,	200 feet and not more than sixteen stories.
Toronto,	Not exceeding ten stories.
Washington,	160 feet on Pennsylvania Avenue; 130 feet elsewhere, and not exceeding width of street, plus 20 feet.
London,	Not exceeding width of street, nor usually 80 feet.
Berlin,	Not exceeding width of street, nor usually 72 feet.
Frankfort,	Inner city, 66 feet, and usually not exceeding width of street; outer city, 59 feet, and usually not exceeding width of street.
Paris,	66 feet on streets 66 feet wide; 59 feet on streets 32-66 feet wide; 49 feet on streets 26-32 feet wide; and 39 feet on streets under 26 feet wide.
Zürich,	Public squares, etc., 39 feet; elsewhere, 51 feet, and not exceeding width of street.

These regulations and others proposed may be classified in six main groups, as follows: (1) the flat limit; (2) the limit proportioned to width of street; (3) the limit governed by a sloping line; (4) the limit governed by cross-sections; (5) the limit by cubage; (6) the limit by cubage proportioned to width of street. (1) The flat limit to height is in effect in Boston, Chicago, etc., but adopted at different heights. If placed low enough, it has the merit, which no other regulations have, of giving a relatively uniform sky-line throughout the city; but it does not permit the modern tower building, which has both architectural and practical value, and it does not take into account the relative width of the street in its effect upon congestion, light, etc., though it bears some relation to congestion over large areas. (2) The limit to height proportioned to width of street is in effect in Cleveland, St. Louis, and in Europe generally, using different proportions, however. It covers the factor of light and air precisely, but does not permit tower buildings, though it does encourage architectural uniformity along the street. It bears but an imperfect rela-

tion to congestion, because it neglects the factor of depth of lot. (3) Height controlled by a sloping line from the opposite side of the street takes into account light and air only. It permits additional height back from the street, as was recently advocated in Toronto, which may increase congestion; and it is not adapted in most situations to effective architectural treatment. (4) Height controlled by area of cross-sections or elevations may meet the factor of congestion in part, but is confusing in its application and is not usually adapted to architectural treatment, though the Buffalo regulation seems based principally on architectural effect and safety. (5) The limit by cubage (*i.e.*, total volume) has been proposed for New York. It is concerned with the factor of congestion, as the volume may not exceed a certain number of times the area of the lot, but does not cover the requirements of light and air, for the entire building may be built as a great wall on the street line. Like the flat limit, it does not take into account congestion, except over large areas. (6) The limit by cubage proportioned to width of street covers the factor of congestion precisely, and permits effective architectural treatment, but is open to the same objection as the simple cubage method in the matter of light and air.

To formulate a regulation more closely conforming to all the requirements, a combination of (2) and (6) will evidently be most effective. In such a regulation, cubage (and therefore the factor of congestion) and the average height of the front elevation (and therefore the factor of light and air) will vary directly as the width of the street, and the tower building will be encouraged without the abuse of its unrestricted adoption. Furthermore, the regulation should be simple in its provisions and clear in its application. In the following regulation it has been attempted to approximate closely these conditions:—

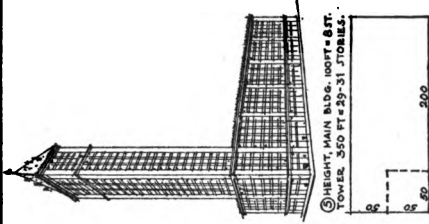
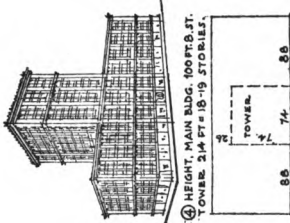
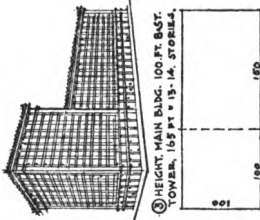
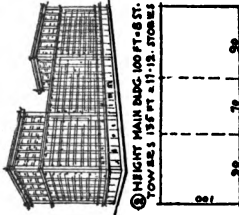
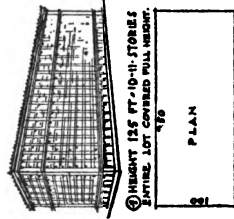
Height Regulation for Strictly Fire-proof Commercial Buildings

A building may occupy its entire lot to a height not exceeding the width of the principal street upon which it faces, and not exceeding in any case 100 feet. Above this height the cubage of the building shall not exceed one-fourth of such height multiplied by the area of the lot.

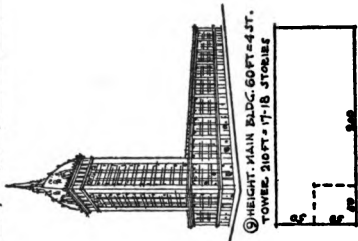
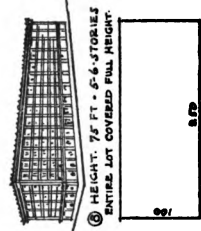
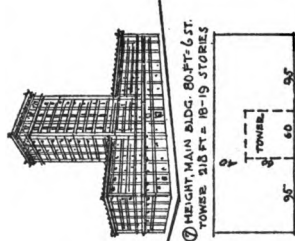
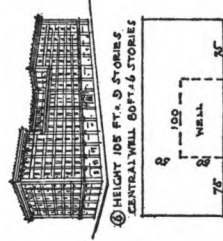
The method of measuring height, restrictions as to rear and interior courts, the use of cornices, towers, etc., should also be de-

**TYPICAL EXAMPLES OF BUILDINGS PERMITTED
BY PROPOSED HEIGHT REGULATION**
ARTHUR C COMEY LANDSCAPE ARCHITECT

A - ON STREETS 100 FT. WIDE OR WIDER (1-5)



B - ON 80 FT. STREETS (6 AND 7)



C - ON 60 FT. STREETS (8 AND 9)

SCALE OF PLANS:
1" = 10'

fined, but have not been included here, as they are common to all forms of regulations. The accompanying sketches show a few types of buildings permitted under this regulation.

The height regulation has been considered thus at some length, because the time to put such a limitation in force is now, while Houston is still a city of intermediate size. As its streets are rather uniformly broad, quite ideal conditions can be preserved by the "width plus one-quarter" proportion, which would be impossible with greater population or in a city with narrower streets or unusual topographical features, such as exist in New York, for example. Under such conditions the "solid height" permitted would need to be more than equal to the width of the street or one hundred feet, or the tower building could be further encouraged by increasing the relative ratio of the remaining cubage, but the principle would remain the same.

4. Encroachments upon the streets in the business district materially interfere with their use as highways and are undoubtedly illegal, as the title to streets, both above and below the surface, presumably vests in the city. Subsurface encroachments, such as cellars under the sidewalk, while they do not now hinder the use of the street, may, as the multiplication of pipes, conduits, and ultimately subways goes on, greatly interfere with such improvements. The most satisfactory way of dealing with them will be to make them pay a reasonable rental on rather long leases.

Above the surface, encroachments interfere with the normal function of the street and tend to congest traffic. Nothing should be permitted beyond the property line on the sidewalk or within fifteen feet above it. Higher up such decorative features as cornices alone may be allowed. Canopies, however, are desirable on retail streets, but should be standardized to conform to certain uniform cross-sections at a fixed height. They should not be supported from the street or sidewalk, and should be restricted as to advertising and required to contain a large percentage of glass.

5. Building Lines prescribing an open strip next to the street will be desirable in residence districts for two reasons. They conserve the character of the street best suited to the majority, as no one is allowed to destroy the beauty of a street whose spacious lawns are a great asset, by placing a single building out on the sidewalk line. And they make possible future widening without condemning buildings, if the street ever changes its character. This is partic-

ularly desirable, as at the very time a street begins to require more width on account of its commercial development all the property owners will be apt to push up buildings to the street line in order to be close to the sidewalk, virtually narrowing the street, whereas, if concerted action were possible, they would greatly prefer to bring the sidewalk back to the buildings. Building lines should be fixed in the same way as street lines, establishing them where feasible on old streets and requiring them on all new plats.

6. A Zone System, restricting certain types of building to particular districts, would be of great benefit, as it would protect property against depreciation through undesirable building in its vicinity, and would stabilize the use of land over a period of years, thus creating higher real values. At present, however, it would be a difficult matter to ascertain even for a short space of years the most desirable type of building for each locality, since the city is continually outgrowing its old confines.

In general, commerce may be expected to spread more or less concentrically, with extensions along the principal streets, like the points of a star. Industries will find favorable conditions along the commercial bayou and in touch with the three groups of railroads, running respectively north through the Fifth Ward, west near Washington Street, and south-east along the Santa Fe. Apartments will prefer to a certain extent to reach out into the best residence sections instead of forming a belt between commercial development and residential districts. It is this class alone that would be hampered by the application of a well-planned Zone System, all other types of building being benefited by the segregation.

Studies should be made and data collected which will assist in the ultimate establishment of about four zones, possibly with additional transition zones, as follows:—

I. Industrial Zone; II. Commercial Zone; III. Apartment Zone; IV. Residence Zone.

9. HOUSING

The housing problem is not to the fore in Houston, owing to the comparative lack of tenements and the generous size of the lots for each dwelling. But home conditions can be greatly improved, and a careful search has revealed several incipient evils, which should be stamped out before they gain headway and gradually grow into the

terrible problem that confronts many Eastern cities. The series of papers on housing published in the *Galveston-Dallas News* in November and December, 1911, gives evidence of a limited number of dark rooms, lack of ventilation, the lodger evil, insufficient water supply, and no sewerage at all in certain districts. Proper sanitation is the particular field of the Health Department. The prevention of fire is being dealt with by ordinances amending the building code. But many other beneficial general regulations should be put into effect, and, after a more exhaustive social survey is made, a complete Housing Code should be adopted, using "The Model Housing Law," by Veiller, and the Housing Code of Columbus, Ohio, as a basis. The problem has four main aspects: 1. Tenements; 2. Occupancy of the Lot; 3. Room-overcrowding; 4. Better Housing.

1. Tenements have been proven to be detrimental to health and citizenship founded on the home, and should be permanently discouraged. Expensive apartments may be permitted to be built under fire-proof and sanitary regulations, but cheap, unsafe, and unhealthy tenement houses should be prohibited.

2. The occupancy of the lot should be restricted to prevent lot-overcrowding, both in superficial area and in height. No non-fire-proof building for residential purposes should occupy more than fifty per cent. of its lot, nor be over forty feet high, nor be occupied by more than two families.

3. Room-overcrowding already exists in the housing of Houston's laboring population. It is an evil that vitiates health and morality, and should be stamped out. Each apartment should contain at least six hundred cubic feet of air space for each adult and three hundred cubic feet for each child under twelve years old.

4. Better housing should be encouraged in every way possible. The principles underlying the garden suburbs of England should be applied to Houston conditions. It may be possible to extend the application of homestead aid to co-operative undertakings, providing durable homes at the least cost and with due safeguards to the workmen's interests. In Houston's warm climate intensive home gardens would provide most of a family's vegetables and at the same time afford a healthy reaction from daily indoor work.

The city's direct duty will lie in requiring better methods of platting, giving the majority of homes frontages on non-traffic streets with the resultant economies in construction and upkeep. The application of other city-planning principles will result in the more

economic laying out of lots to fit the topography, the added attractiveness of curving streets, and park reservations along streams. In fact, the workingmen's residential districts may be made among the most attractive features of the great industrial city of the future,—the metropolitan Houston.

IV. LEGAL ASPECTS

To make the plans for Houston's development effective, broad powers will evidently be needed. Legislation elsewhere has covered a wide range of important matters, among which four points are of special application to Houston's problems: first, an Improvement Commission; second, an Authoritative Plan; third, Special Assessments; fourth, Excess Condemnation.

1. To assure a continuous policy and adequate control of the development of the city, there should be established an Improvement Commission, whose chairman will be the Mayor, and whose other members should include those city officials most intimately concerned with its physical development, as well as two citizens not otherwise connected with the city's government. This Commission should have jurisdiction over all matters of location of parks, streets, etc., in the city, provided its limits are enlarged to include all the land likely to be built upon in the near future, or, if they are not sufficiently extended, the commission should be given jurisdiction over this surrounding territory, or else it should be made a Metropolitan Commission with jurisdiction over the Metropolitan District of Houston.

Improvement or Plan Commissions of this sort have recently been organized in many cities, the oldest being in Hartford in 1907. The act establishing this commission is in many ways a model one, and is given herewith in full (page 77). Similar provisions are in force in Maryland, New Jersey, and Wisconsin, and are pending elsewhere.

2. This Commission should prepare an official plan of the city, showing all streets, parks, and public lands of every sort, both existing and as proposed. And the power should be given to make this plan, as it is extended from time to time, authoritative and final, as it is in this way only that a properly correlated growth of the city can be assured. No damages should be allowed for any structure erected in contravention of the plan, and no plat should be permitted to be filed unless it conforms to it.

Provisions of this character have long been in force in Pennsylvania and in Europe generally, and more recently, in part at least, in Baltimore, Washington, and Halifax, N.S. Recommendations

for a number of cities have lately been made with provisions similar to those of the act tentatively drawn by the legislative committee of the National Conference on City Planning. Sections 5 and 6 of this act are given herewith, as well as the relevant portions of the acts applying to Philadelphia.

3. A primary difficulty in carrying out civic improvements has often been the method of paying for them. It has not been that the improvement was not desired nor that the soundness of the proposition as an investment was questioned, but there has been no way of identifying the cost and the benefit. In other words, though property benefited has often been eager to share in the expense to secure an improvement, it has been impossible to finance the proposition, because the only method available was by issuing bonds as a general lien upon the city, whose debt was already large.

In many cities, however, the power has been given to levy special assessments, similar to the paving assessments now operative in Houston, which not only places the cost where it belongs, but by spreading the assessment over a period of years reduces the annual expense to such a low figure that property owners have been very glad to have the opportunity of enhancing the value of their holdings in this manner. In Baltimore, Denver, Minneapolis, and many other cities such provisions are in force. But Kansas City has made the most effective use of this method, having financed her entire park system under the act given in part herewith.

4. Cases will occur in which the only effective method of protecting the city's interest will be by means of excess condemnation; that is, by taking more than is needed for the improvement, with a view to resale of the portions not required. Experience has shown that, where the major portion of a piece of property is needed, the condemnation award will not be materially increased by taking it all, though the city may later obtain a considerable amount for the remnant. The method of excess condemnation has also proven the most satisfactory way of placing a restriction on property adjacent to parks, boulevards, etc., the property often being resold under such a restriction for more than it originally cost, though, had the easement for the restriction alone been condemned, the city would very possibly have had to pay out a large amount. Its application may also be extended to cover the replatting of areas so laid out as to hamper effective development.

The most satisfactory statute covering excess condemnation is

that contained in Section 7 of the Hartford Act. Similar provisions, covering a part or all of these powers, are in force in Baltimore, Massachusetts, Ohio, Pennsylvania, and Wisconsin, and are pending elsewhere. The essential part of the Pennsylvania Act is given herewith.

To secure these powers to Houston, the most satisfactory method appears to be by charter amendment. If the four principles proposed are embraced in a single amendment, they can be fitted into one another with an exactness otherwise impossible, though it is of course realized that it is often more feasible to secure part or most of the provisions desired by taking the matters up one at a time, so that opposition to a single feature need not wreck the entire program.

Without attempting to suggest the final wording of such a charter amendment, it is believed that the following tentative act will furnish a useful basis for such a bill, to be drawn up by a special committee and presented at the next legislature, and then submitted to a vote of the people. It will be noted that Sections 1 to 7 provide for a Metropolitan Improvement Commission, Section 8 provides for an Authoritative Plan, Section 9 provides for Excess Condemnation, Sections 10 and 11 provide for Special Assessments, and Sections 12 and 13 are general enacting provisions.

SYNOPSIS OF METROPOLITAN IMPROVEMENT ACT

- SEC. 1. Boundaries of District.
- SEC. 2. Composition of Commission.
- SEC. 3. Appointment of Citizen Members.
- SEC. 4. Expenses of Commission.
- SEC. 5. Jurisdiction of Commission.
- SEC. 6. Optional Jurisdiction.
- SEC. 7. Preparation of Maps and Plans.
- SEC. 8. Adoption of Plans by Council.
- SEC. 9. Acquirement of Land.
- SEC. 10. Special Assessments.
- SEC. 11. Certificates of Indebtedness.
- SEC. 12. General Provisions.
- SEC. 13. Referendum.

AN ACT

TO AMEND THE CHARTER OF THE CITY OF HOUSTON, TEXAS, AND
TO ESTABLISH THE METROPOLITAN DISTRICT OF HOUSTON AND
AN IMPROVEMENT COMMISSION FOR THE SAME

Be it enacted, by the Legislature of the State of Texas, that a certain Act, entitled "An Act to grant a new Charter to the City of Houston, Harris County, Texas, repealing all laws or parts of laws in conflict therewith, and declaring an emergency," passed by the 29th Legislature of the State of Texas on the 28th day of March, 1905, and as amended, and being the present charter of the City of Houston, be, and the same is, hereby amended by the addition thereto of an article to be known as Article VII a., as follows, to wit:—

ARTICLE VII a.

METROPOLITAN IMPROVEMENTS

SECTION 1. DISTRICT. There is hereby established the Metropolitan District of Houston, whose boundaries shall run with the cardinal points of the compass, and shall be, respectively, four miles north, six miles east, four miles south and five miles west of the centre of the Harris County Court-house.

SEC. 2. COMMISSION. There shall be in the Metropolitan District of Houston an Improvement Commission, which shall consist of the Mayor of the City of Houston, who shall be its presiding officer; the finance commissioner of the City of Houston; the city engineer of the City of Houston; the street commissioner of the City of Houston; the county engineer of Harris County; and two citizens, neither of whom shall hold any other office in said city or county governments.

SEC. 3. APPOINTMENT. Within thirty days after the passage of this Act the Mayor shall appoint one citizen member to hold office until the first day of March, 1916, and one citizen member to hold office until the first day of March, 1918, and on or before the first day of March, 1916, and every two years thereafter, the

Mayor shall appoint one citizen member for the term of four years from the said first of March. The members of said commission shall hold office until their respective successors are elected and qualify.

SEC. 4. EXPENSES. Said Improvement Commission may incur expenses not exceeding the budget appropriations therefor, but no member thereof shall be paid for his services as such member.

SEC. 5. JURISDICTION. All matters concerning the location, enlargement and general treatment of any waterway, street, bridge, boulevard, parkway, park, playground, statue or other memorial, public building, or any other public property for administrative, institutional, educational or any other public use, and the appointment or removal of the Superintendent of Parks and Director of Recreation, shall be referred to said Improvement Commission by the City Council or the County Commissioners, as the case may be, and no further action shall be taken thereon until said Improvement Commission shall have made a report in favor of such action.

SEC. 6. OPTIONAL JURISDICTION. The City Council or the County Commissioners may refer to said Improvement Commission the construction or carrying out of any public work not expressly within the province of other commissions or officials of said city or county, and may delegate to said Improvement Commission all powers which the said City Council or County Commissioners deem necessary to complete such work in all details.

SEC. 7. MAPS AND PLANS. Said Improvement Commission may make or cause to be made a map or maps of said Metropolitan District, or its vicinity, or any portion thereof, showing locations proposed by it for any matters under its jurisdiction or pertinent thereto, and may employ expert advice in the making of such map or maps.

SEC. 8. ADOPTION OF PLANS, ETC. Said Improvement Commission may recommend to the City Council of Houston that a plan or plans prepared by it for the Metropolitan District, or any portion thereof, be adopted as the Plan of Houston. And upon such adoption by the City Council said Plan shall be authoritative and final, and shall not be changed in any way except by the adoption

of subsequent recommendations of said Improvement Commission. The County Clerk of Harris County shall not record any plat of property within the Metropolitan District until it shall have been approved in writing by the City Engineer of Houston. And after said plan or portion thereof shall have been adopted the City Engineer shall not approve any plat which does not conform to said plan or portion thereof. And no street or other public property shall be acquired or laid out except in accordance with said Plan or portion thereof. And no damages shall be collectible for buildings or other structures or improvements to the same condemned by the City of Houston or Harris County, in carrying out said Plan, if such buildings or other structures or improvements to the same shall have been constructed subsequent to the adoption of that part of said Plan covering the land so built upon. And the adoption of said Plan, or any part thereof, by the City of Houston, shall be deemed sufficient notice to all concerned that the said Plan, or part thereof, is in full force and effect from the date of its adoption. If, however, any property shall be damaged by the adoption of said Plan in excess of the benefits accruing to it by reason of the adoption, such excess shall be estimated and paid to the owner of said property at the time said property is taken; or, if by change in the Plan no part or interest in said land is thereafter to be taken, it shall be paid at the time of such change.

SEC. 9. ACQUIREMENT OF LAND. Said City of Houston or Harris County, acting through said Improvement Commission or otherwise, shall have power within the said Metropolitan District to acquire by gift, purchase or condemnation real estate for establishing, laying out and enlarging waterways, streets, bridges, boulevards, parkways, parks, playgrounds, sites for public buildings and property for administrative, institutional, educational and all other public uses, and reservations in and about and along and leading to any or all of the same, and after the establishment, layout and completion of such improvements may convey any real estate thus acquired and not necessary for such improvements, with or without reservations concerning the future use and occupation of such real estate, so as to protect such public works and improvements and their environs, and to preserve the view, appearance, light, air and usefulness of such public works, and to promote the public health and welfare. And it is hereby declared that such acquisition and

conveyance of land for the herein-mentioned purposes constitutes a public use, and is for the public health and welfare.

SEC. 10. ASSESSMENTS. Said City of Houston or Harris County, acting through said Improvement Commission or otherwise, may district the Metropolitan District, or any portion or portions thereof, for the purpose of levying assessments, and may levy assessments, payable in one or more instalments, on real estate benefited, for the purpose of defraying part or all of the cost of acquiring, laying out, constructing and improving waterways, streets, bridges, boulevards, parkways, parks, playgrounds and other public property used for recreation, but in no case shall such assessment exceed the amount of the benefit enjoyed. Nor in the case of construction and improvement of a pavement in a street shall it exceed two-thirds of the cost of said pavement in the street upon which fronts the property so assessed. Nor shall such assessment be levied for the purpose of constructing or improving a pavement, curbing or sidewalks in a street unless and until the owners of two-thirds of the front feet of property abutting upon such street or portion thereof proposed to be constructed or improved shall have petitioned in writing for the same. Such assessments levied shall be a prior lien upon the property so assessed, and shall be collected through the usual agencies for collecting other taxes and shall be kept in a separate fund.

SEC. 11. CERTIFICATES. Said City of Houston or Harris County, acting through said Improvement Commission or otherwise, may issue certificates of indebtedness for the purpose of raising money in advance of dates when the aforesaid assessments are due; said certificates to be in serial form, to bear interest not exceeding 7 per cent. per annum, and to run for a period not exceeding fifty years when issued for the purpose of acquiring real estate, not less than one-fiftieth of the total amount to be retired in each year; and to run for a period not exceeding twenty years when issued for the purpose of laying out or constructing improvements, not less than one-twentieth of the total amount to be retired in each year. Said certificates shall not be deemed a part of the city debt within the debt limit. Payment of interest and principal on said certificates shall be made from the assessments on real estate benefited as levied by said Commission, and shall be guaranteed by the real estate so assessed.

SEC. 12. GENERAL PROVISIONS. All sections and provisions of the Charter of the City of Houston inconsistent with this Act are hereby repealed.

SEC. 13. REFERENDUM. This act shall take effect upon its submission to a vote of the resident property tax-payers within the Metropolitan District of Houston, as herein defined, who are qualified voters, at a special election called for that purpose by the City Council of Houston and the Harris County Commissioners, acting jointly, if the same be adopted at said election.

PLAN COMMISSION—HARTFORD ACT

APPROVED MARCH 26, 1907

"SECTION 1. That there shall be in the city of Hartford a Commission on the City Plan, which shall consist of the mayor, who shall be its presiding officer, the president of the board of street commissioners, the president of the board of park commissioners, the city engineer, two citizens, neither of whom shall hold any other office in said city government, one member of the board of aldermen, and one member of the common council board, to be appointed as hereinafter provided.

"SECTION 2. The necessary expenses of said Commission shall be paid by the city, but no member thereof shall be paid for his services as such member.

"SECTION 3. During the month of April, 1907, the mayor shall appoint one citizen member of said Commission to hold office for two years, and one citizen member to hold office for three years from the first of May then next ensuing, and in the month of April, 1909, and in April in the years thereafter when the terms of such citizen members respectively expire, the mayor shall appoint one citizen member of said commission for the term of three years from the first day of May then next ensuing. During the month of April, 1907, and in each April thereafter, the board of aldermen and the common council board of said city shall each appoint from its own number a member of said commission to hold office for the term of one year from and after the first day of May then next ensuing. The members of said commission shall hold office until their respective successors are elected and qualified.

"SECTION 4. All questions concerning the location of any public building, esplanade, boulevard, parkway, street, highway, square, or park shall be referred to said commission by the court of common council for its consideration and report before final action is taken on such location.

"SECTION 5. The court of common council may refer to said commission the construction or carrying out of any public work not expressly within the province of other boards or commissions of said city, and may delegate to said commission all powers which the said council deems necessary to complete such work in all details.

"SECTION 6. Said commission may make or cause to be made a map or maps of said city, or any portion thereof, showing locations proposed by it for any new public buildings, esplanade, boulevard, parkway, or street, and grades thereof, and street, building, and veranda lines thereon, or for any new square or park, and may employ expert advice in the making of such map or maps.

"SECTION 7. Said city of Hartford, acting through said commission or otherwise, shall have power to appropriate, enter upon, and hold in fee real estate within its corporate limits for establishing esplanades, boulevards, parkways, park grounds, streets, highways, squares, sites for public buildings, and reservations in and about and along and leading to any or all of the same; and, after the establishment, layout, and completion of such improvements, may convey any real estate thus acquired and not necessary for such improvements, with or without reservations concerning the future use and occupation of such real estate so as to protect such public works and improvements and their environs, and to preserve the view, appearance, light, air, and usefulness of such public works."

AUTHORITATIVE PLAN

ACT PROPOSED BY COMMITTEE OF CITY PLANNING CONFERENCE

"SECTION 5. From and after the adoption of any official plan, the owner or owners of any interest in any land included thereon within the limits of any addition to any existing park, highway or other land or interest therein belonging to said city, its street or building lines or within the limits of any proposed park or highway, or other land so plotted, and any and all persons holding any right, title or interest from or under such owner or owners, shall, except

as hereinafter stated, have and retain any and all rights therein that they or any of them would have but for the adoption of said plan. If and when said city shall take and appropriate said land, or interest therein, as proposed by said plan, no person or persons shall be entitled to recover any damages from said city for or on account of any building, structure or improvement of any kind placed or constructed, after such plan shall have been adopted, within the limits of such plotted park or highway or addition thereto.

"SECTION 6. Any person injured in his property by the adoption of any plan, as aforesaid, shall receive just compensation therefor, the same to be estimated and paid under the rules of law provided in this state for determining and paying damages sustained in laying out highways, in said city. Said damages shall be estimated and paid to any such owner at the time said city shall take and appropriate his land, or any easement or other interest therein, and as a part of the damages therefor; but if, by amendment, change or revocation, duly adopted as aforesaid, no part or interest in the land of any such owner is thereafter to be so taken or appropriated, then his right to any or all damages shall accrue upon the adoption of such amendment, change or revocation."

AUTHORITATIVE PLAN—PHILADELPHIA ACTS

EXTRACTS, ACT OF ASSEMBLY, APRIL 21, 1855

"It shall be the duty of Councils, under the supervision of the president of the said board, to cause to be completed by the District Surveyors from time to time, a survey and plans of the City plot not already surveyed, . . . Whenever Councils shall deem the public exigency to demand it, they may order by ordinance any street laid upon any of the public plans of the City to be opened giving three months notice thereof to the owner; whereupon, any of the owners whose ground will be taken by such street, may forthwith petition the Court of Quarter Sessions to assess the damages which such owners may sustain by the opening of such street; . . . It shall be lawful for Councils to institute an inquiry as to persons benefited by the opening of any new street, and to withhold appropriation for the opening of same until the persons found to be benefited shall have contributed according to the benefit to be derived therefrom, towards the damages awarded to the owners, whose ground

will be taken therefor; but in no instance shall the contribution exceed the damages awarded for the ground taken."

ACT OF ASSEMBLY, JUNE 6, 1871

"The board of surveyors of the City of Philadelphia, as appointed and constituted under acts of assembly, be and the same are hereby invested with full authority to examine and finally confirm or reject all plans of surveys or revisions of plans of the City of Philadelphia when the same have been made by direction of the select and common councils of the said city."

ACT OF ASSEMBLY, DECEMBER 27, 1871

"It shall not be lawful to erect any building upon any of the streets laid out on the plans of the City, after said plans have been confirmed; and when said streets are ordered to be opened buildings erected upon them since their confirmation shall be removed at the expense of the owner and without any damages being paid therefor."

SPECIAL ASSESSMENTS—KANSAS CITY ACT

EXTRACTS FROM CHARTER OF KANSAS CITY, MO., ADOPTED AUGUST 4, 1908

"ARTICLE XIII.—Section 7. The territory within the city limits, as said limits are described in this charter and so long as said limits remain unchanged, is hereby divided into five park districts, . . . Sec. 9. The parks, parkways, public squares and boulevards, established in any park district or districts within the city limits, whether acquired by purchase or condemnation, may be paid for by special assessments upon the real estate situated therein found benefited thereby as hereinafter authorized. . . . Sec. 15. If the land to be purchased, taken or damaged as aforesaid, is to be paid for by the assessment of benefits upon real estate, whether the land acquired is to be condemned or purchased, the jury of freeholders, to pay compensation for the land purchased, taken or damaged, shall estimate the amount of benefit to the city at large, inclusive of any benefit to the property of the city, and shall estimate the value of the benefit of the proposed improvement to each and every lot, piece and parcel of private property, exclusive of the buildings and

improvements thereon, within the benefit district, if any benefit is found to accrue thereto; and in case the total of such benefits, including the benefits assessed to the city at large, equals or exceeds the compensation assessed, or to be paid for the property purchased, taken or damaged, then said jury shall assess against the city the amount of benefits to the city as aforesaid, and shall assess the balance of the cost of such improvement against the several lots and parcels of private property found benefited, each lot or parcel of ground to be assessed with an amount bearing the same ratio to such balance as the benefit to each lot or parcel bears to the whole benefit to all the private property assessed. . . . Sec. 21. Said assessments shall be payable in one instalment, or in such number of annual instalments as may be determined by the Common Council upon the recommendation of the Board of Park Commissioners. . . . Sec. 24. . . . the Common Council, upon the recommendation of the Board of Park Commissioners, and for the purpose of raising money in advance of dates when assessments are due, to pay for land purchased, taken or damaged, may provide by ordinance that the City Treasurer shall issue park fund certificates in amount not to exceed the total amount of assessments against the private property. . . . Distribution of the amounts collected upon said special assessments, including interest, shall be made to the holder or holders of such certificates pro rata at least semi-annually, at such specified dates as may be provided in the ordinance authorizing the issue of the same, and the holder shall receipt for such payments; and the city shall be liable on such certificates to the holders thereof for the sums collected from the special assessments upon which said certificates are issued and not otherwise. . . . Sec. 25. The Board of Park Commissioners may sell such park fund certificates at such price not less than the face value of the amount of special assessments, excluding interest, represented by said certificates, as may be obtainable, . . . Sec. 33. The real estate, exclusive of improvements thereon, in each park district, may, upon recommendation of the Board of Park Commissioners, be specially assessed annually for maintaining, adorning, constructing, repairing and otherwise improving the park or parks, parkway or parkways, road or roads, boulevard or boulevards, avenue or avenues, or portions thereof, located therein, which are under the control and management of a board of park commissioners; and such assessments may be made according to valuation and assessment for taxation of real estate in each park district made

for city purposes; Provided, That any real estate which shall not be listed on the City Assessor's books for taxation for general city purposes, may, by order of the Common Council, be listed and valued by the City Assessor for the purposes of this assessment; And provided, further, That such annual assessments authorized by this section shall never exceed in any one year two and one-half mills upon each dollar of valuation as shown on the books of the City Assessor as aforesaid. . . . Sec. 34. The Common Council shall also have power, upon recommendation of the Board of Park Commissioners, and for the purpose of maintaining, repairing and otherwise improving the boulevards, parkways, roads and avenues under the control and management of said Board, to levy, annually, a special assessment on the lots, tracts and parcels of land found fronting and abutting on said boulevards, parkways, roads and avenues. . . . No such annual assessment last aforesaid shall exceed the sum of ten cents per front foot of such lots, tracts and parcels of land, according to the frontage thereof on such boulevards, parkways, roads or avenues."

EXCESS CONDEMNATION—PENNSYLVANIA ACT

APPROVED JUNE 8, 1907

"SECTION 2. It shall be lawful for and the right is hereby conferred upon cities of this Commonwealth to purchase, acquire, enter upon, take, use and appropriate neighboring private property within two hundred feet of the boundary lines of such property so taken, used and appropriated for public parks, parkways and playgrounds, in order to protect the same by the resale of such neighboring property with restrictions, whenever the Councils thereof shall by ordinance or joint resolution determine thereon, provided that in the said ordinance or joint resolution the Councils thereof shall declare that the control of such neighboring property within two hundred feet of the boundary lines of such public parks, parkways or playgrounds is reasonably necessary in order to protect such public parks, parkways or playgrounds, their environs, the preservation of the view, appearance, light, air, health or usefulness thereof.

"SECTION 3. That it shall be lawful for and the right is hereby conferred upon the cities of this Commonwealth to resell such neighboring property with such restrictions in the deeds of resale in regard

to the use thereof as will fully insure the protection of such public parks, parkways and playgrounds, their environs, the preservation of the view, appearance, light, air, health and usefulness thereof, whenever the Councils thereof shall by ordinance or joint resolution determine thereon.

"SECTION 4. The taking, using and appropriating by the right of eminent domain as herein provided, of private property for the purpose of making, enlarging, extending and maintaining public parks, parkways and playgrounds, and of neighboring property within two hundred feet of the boundary lines of such public parks, parkways and playgrounds in order to protect such public parks, parkways and playgrounds, their environs, the preservation of the view, appearance, light, air, health and usefulness thereof, by reselling such neighboring property with such restrictions in the deeds of resale as will protect said property so taken for the aforesaid purposes, is hereby declared to be taking, using and appropriating of such private property for public use."

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